



A Study on the Factors Affecting E-commerce Platform Quality and Their Impact on Consumer Purchase Behavior Based on Structural Equation Modeling

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Abstract. With the widespread adoption of the digital economy and internet technologies, e-commerce platforms have become the mainstream channel in the consumer market. However, as the industry's traffic boom fades and user growth plateaus, competition for existing customers and refined operations have become inevitable trends. Exploring the impact of platform quality on consumer purchasing behavior holds practical significance. Based on the S-O-R theoretical framework, this study constructs a moderated multiple mediation model aimed at revealing the driving mechanisms of platform quality dimensions on consumer purchasing behavior. Empirical analysis of 643 valid questionnaires using a SEM model yields the following conclusions: the platform's marketing objectives, system algorithms, and service systems all exert a significant positive influence on consumer purchasing behavior, with system algorithms demonstrating the strongest direct explanatory power. Safety and reliability, as well as decision-making efficiency, partially mediate the relationship between platform quality factors and purchasing behavior, while the moderating effect of platform proficiency exhibits significant heterogeneous intervention characteristics. This study not only expands the theoretical boundaries of platform consumer behavior evolution but also provides relevant recommendations for tiered and refined operational strategies through empirical analysis.

Keywords: Structural equation modeling; E-commerce; Consumers; Purchasing behavior; S-O-R theory

1 Introduction

In 2024, China's e-commerce market continued to grow, with the country's total e-commerce transaction volume reaching 46.4 trillion yuan, a 3.9% increase from the previous year. According to data from the "2024-2029 China E-commerce Industry Market In-depth Research and Strategic Consulting Analysis Report," the global e-commerce market is projected to grow from \$16.29 trillion in 2023 to approximately \$67.05 trillion by 2033. In this era of rapid internet development, e-commerce has become an integral part of Chinese consumers' daily spending patterns, serving as a key driver of China's economic growth and consumption upgrade.

However, China's e-commerce market is facing significant pressure as it enters a phase dominated by the existing market. General e-commerce platforms are experiencing sluggish growth, and traditional promotional tactics are struggling to stimulate consumer enthusiasm. As a result, the growth rate of consumer spending dropped from 17.5% in 2022 to 5.4% in 2023, and even turned negative in 2024, recording a decline of 6.9%. This trend indicates that the e-commerce sector is shifting from expansion driven by traffic growth to a phase of deepening engagement in the existing market, where platform quality has become the core competitive advantage.

When it comes to online shopping, delivery time, product quality, low prices, and the extent of discounts are the primary factors influencing consumer purchasing behavior. Meanwhile, user reviews and detailed product information are also crucial factors affecting purchasing decisions. This reveals that consumers make comprehensive evaluations of the quality of platform marketing information, the accuracy of algorithmic recommendations, and the service guarantee system when making online purchasing decisions. Against this backdrop, this paper analyzes the transmission pathways and mechanisms through which e-commerce platform quality influences consumer purchasing behavior, and further explores the moderating and mediating effects of platform familiarity, thereby providing theoretical and empirical support for the governance of e-commerce platforms.

2 Theoretical Framework and Research Hypotheses

To gain a deeper understanding of the impact of e-commerce on consumer purchasing behavior, this study integrates the Stimulus-Organism-Response (SOR) theory as an overarching framework, along with perceptual-level models such as the Perceived Value Theory, the Dual-Process Theory, the Technology Acceptance Model (TAM), and the Unified Theory of Acceptance and Use of Technology (UTAUT), to form a comprehensive theoretical model.

The S-O-R theory, comprehensively examines the relationship among external stimuli, internal psychological states, and behavioral responses. In this study, the marketing objectives, system algorithms, and service systems of e-commerce platforms can be regarded as the external stimulus layer (S) on the platform side; the perceived value, decision-making efficiency, and perceived safety and reliability experienced by consumers after exposure to these stimuli are considered the internal organism layer (O); and the final purchase behavior exhibited by consumers represents the response layer (R) resulting from psychological processing. Within the S-O-R framework and guided by specific research objectives, this study finds that the quality of e-commerce platforms influences consumer purchasing behavior through mediating and moderating variables.

The core tenet of the Perceived Value Theory^[1] is that consumers' purchasing decisions are based on evaluations of products formed through subjective perceptions of value—just as decisions regarding products on e-commerce platforms are influenced by perceptions of their appearance, overall design, and user reviews. This theory provides a crucial foundation for the mediating mechanism of perceived value, while the

Dual-Process Theory [2] offers an explanation for the mediating variables in decision-making efficiency. The Perceived Risk Theory and Service Quality Theory provide theoretical support for safety and reliability.

At the level of moderating variables, both the Technology Acceptance Model and the Integrated Theory of Technology Acceptance and Use indicate that consumers' proficiency with a platform influences their purchase intention and, consequently, their purchasing behavior. This study treats platform proficiency as a moderating variable and examines its moderating effect on the transmission path from the multiple mediating mechanisms to the final purchasing behavior.

The specific paths are shown in the two figures (Figures 1 and 2) below, and both have a positive effect.

As shown in Figure 1, the mediator effects diagram illustrates the causal pathways for Hypothesis 5, all of which are positive. Figure 2 shows the pathways for Hypotheses 1–4, 6, and 7, all of which are positive relationships.

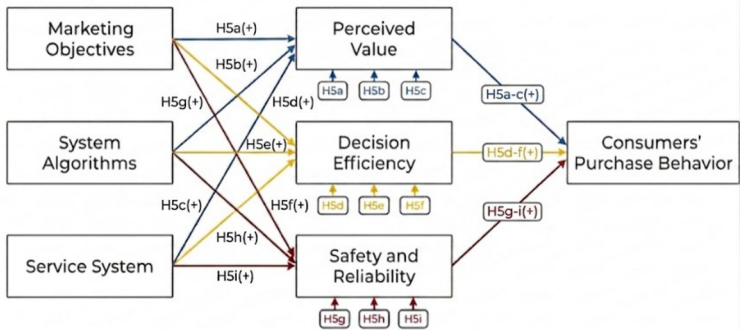


Fig. 1. Diagram of Mediator Effects

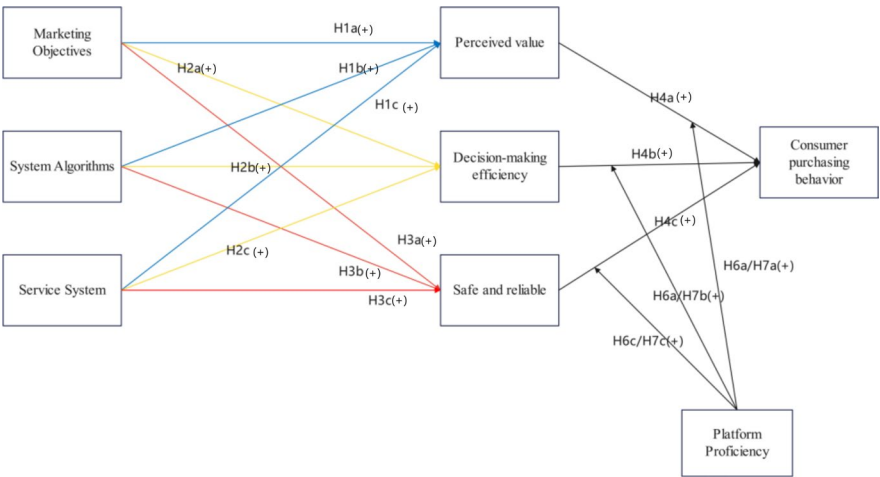


Fig. 2. Mechanism of Action Diagram

3 Research Design

3.1 Data Sources

This study collected raw data through a questionnaire survey, aiming to systematically examine consumer demographics and corresponding purchasing behaviors. The questionnaire was designed based on a literature review and theoretical framework, covering multiple dimensions such as marketing objectives, system algorithms, service systems, perceived value, decision-making efficiency, and safety and reliability. All variables in the questionnaire items were measured using a five-point Likert scale (“1” indicates “Strongly Disagree”; “2” indicates “Disagree”; “3” indicates “Neutral”; “4” indicates “Agree”; “5” indicates “Strongly Agree”). Table 1 below shows the distribution of the sample.

Table 1. Sample Distribution

Variable	Category	Count	Percentage	Variable	Category	Count	Percentage
Gender	Male	313	48.68%	Age	Under 18	8	1.24%
	Female	330	51.32%		19-25 years old	197	30.64%
Occupation	Student	22	3.42%		26-35 years old	162	25.19%
	Stay-at-home mom/dad	221	34.37%		36-45 years old	155	24.11%
	Company employee	113	17.57%		46-65 years old	110	17.11%
	Government employee	74	11.51%		65 and older	11	1.71%
	Freelancing	83	12.91%	Monthly income	Under 3,000 yuan	81	12.60%
	Retired employee	7	1.09%		3,000-5,000 yuan	197	30.64%
	Currently unemployed	53	8.24%		5,000-10,000 yuan	129	20.06%
	Other	70	10.89%		10,000 yuan or more	174	27.06%
					No steady income	62	9.64%

3.2 Variable Measurements

To ensure reliability and validity, all variable measurements in this study are based on established domestic and international scales or relevant literature, and have been adapted according to the research context. The “Marketing Objectives” scale was adapted from Chen and Li’s^[3] view that price promotions influence consumers’ purchase intentions during shopping festivals, specifically: “I would think of these platforms for transactions during marketing events such as ‘Double 11’ and ‘618.’” The “Sense of Belonging” and “Sense of Presence” dimensions were designed based on the perspectives of Meng Lu et al.^[4], as reflected in the statement: “I am more

willing to purchase because the live streamer’s introduction allows me to gain an intuitive understanding of the product.”The“System Algorithm”dimension draws on content from Pu et al. [5], such as “Recommendations that interest me and are novel”and“Allows me to discover new products.” The“Service System”draws from Parasuraman et al.’s [6] measurement item“Delivery time matches the promise,”adapted to state:“The actual delivery time for most of the items I purchase is generally consistent with the estimated delivery time provided by the platform at the time of ordering.” Wolfinbarger and Gilly [7] proposed the eTailQ scale, highlighting that“customer service response”carries a very high weight in enhancing consumer loyalty; thus, a scale regarding this aspect was adapted. The item in the“Perceived Value”section,“When I purchase a product on an e-commerce platform that I consider to offer exceptional value for money, recommending it to friends gives me a sense of pride and prestige,”was designed based on the dimension“I would recommend this item to friends or relatives”from Sweeney and Soutar [8]. The concept of repurchase loyalty stems from Bhattacharjee’s [9] perspective on“willingness to continue using the platform.” The “Decision Efficiency”scale is based on the content in Palmer’s [10] research regarding how categorization features help users quickly and accurately locate items. The items specifically developed by Flavián and Guinalú [11] for e-commerce platforms, which are not influenced by third parties, provided the design source for“Safety and Reliability.”The“Perceived Safety”item in the scale designed by Kim et al. [12] also served as a reference. The scale items for“platform proficiency”draw upon the concept of“familiarity”and the corresponding item design from Gefen[13]. The scale items under“consumer purchasing behavior”are derived from Fan et al.’s [14] research regarding the preference for e-commerce channels over traditional retail in both online and offline retail contexts.

Cronbach’s alpha is primarily used in reliability analysis to assess internal consistency. A coefficient above 0.7 indicates good reliability.

Table 2. Reliability and Validity Analysis Table

Key Concepts		Cronbach's alpha	KMO value	Bartlett's Sphericity Test		
				Approximate chi-square	df	P-value
Marketing	Objec-	0.926	0.809	2226.936	6	0.000
tives						
System	Algo-	0.928	0.848	2797.485	10	0.000
rithms						
Service System		0.934	0.867	2893.863	10	0.000
Perceived value		0.941	0.925	4001.798	21	0.000
Decision-making		0.927	0.813	2221.071	6	0.000
efficiency						
Safe and reliable		0.905	0.781	1878.645	6	0.000
Platform	Profi-	0.920	0.780	2190.100	6	0.000
ciency						
Consumer	pur-	0.917	0.797	2077.837	6	0.000
chasing behavior						

The Table 2 presents comprehensive reliability and validity assessments for the measurement scales, demonstrating that the overall reliability coefficients (Cronbach's α) for all constructs exceed 0.9, substantially surpassing the conventional threshold of 0.70 and indicating excellent internal consistency and high data reliability suitable for subsequent multivariate analyses. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy yields a value of 0.914, well above the recommended minimum of 0.60, confirming that the correlation matrix is appropriate for factor analysis and that information can be effectively extracted from the dataset, while Bartlett's Test of Sphericity further supports this conclusion with a p-value less than 0.01, indicating statistically significant correlations among variables and rejecting the null hypothesis of an identity matrix. Principal component analysis with varimax rotation reveals eight distinct factors with eigenvalues greater than 1, with individual variance explained by each factor as follows: Factor 1 (14.413%), Factor 2 (10.842%), Factor 3 (10.621%), Factor 4 (8.765%), Factor 5 (8.741%), Factor 6 (8.683%), Factor 7 (8.586%), and Factor 8 (8.509%), and post-rotation, the cumulative variance explained reaches 79.160%, substantially exceeding the 50% minimum criterion and the more stringent 60% threshold, demonstrating that the extracted factors account for a substantial proportion of the total variance in the observed variables. Collectively, these results provide robust evidence that the measurement instrument exhibits excellent construct validity, comprising both convergent and discriminant validity components, thereby confirming the factorial structure of the scale and its appropriateness for hypothesis testing in the subsequent structural equation modeling analysis.

4 Empirical Findings

4.1 Correlation Coefficient

The Table 3 below lists the Pearson correlation coefficients between the variables.

As presented in Table 3, Pearson correlation analysis was conducted to examine the bivariate relationships among the seven key constructs: consumer purchasing behavior, platform familiarity, safety and reliability, decision-making efficiency, perceived value, service system, system algorithms, and marketing objectives. The results revealed that all seven factors exhibited statistically significant positive correlations with consumer purchasing behavior, with correlation coefficients ranging from moderate to moderately strong levels ($r = 0.300$ – 0.366 , $p < 0.01$).

Specifically, service system demonstrated the strongest association with purchasing behavior ($r = 0.366$, $p < 0.01$), followed by safety and reliability ($r = 0.337$, $p < 0.01$), marketing objectives ($r = 0.353$, $p < 0.01$), perceived value ($r = 0.323$, $p < 0.01$), platform familiarity ($r = 0.314$, $p < 0.01$), system algorithms ($r = 0.334$, $p < 0.01$), and decision-making efficiency ($r = 0.300$, $p < 0.01$). The consistently positive direction of these correlations (all $r > 0$) provides preliminary evidence that higher levels of platform familiarity, perceived safety, decision efficiency, value perception, service quality, algorithmic effectiveness, and clear marketing objectives are associated with increased consumer purchasing propensity.

Table 3. Table of Pearson Correlation Coefficients Among Study Variables

Pearson's Correlation - Standard Format										
	Mean	Standard deviation	Consumer purchasing behavior	Platform Proficiency	Safe and reliable	Decision-making efficiency	Perceived value	Service System	System Algorithms	Marketing Objectives
Consumer purchasing behavior	3.336	1.081	1							
Platform Proficiency	3.334	1.121	0.334**	1						
Safe and reliable	3.288	1.099	0.314**	0.291**	1					
Decision-making efficiency	3.327	1.132	0.337**	0.386**	0.287**	1				
Perceived value	3.288	1.066	0.300**	0.384**	0.304**	0.372**	1			
Service System	3.363	1.099	0.323**	0.320**	0.266**	0.318**	0.304**	1		
System Algorithms	3.326	1.097	0.366**	0.390**	0.298**	0.378**	0.336**	0.346**	1	
Marketing Objectives	3.337	1.128	0.353**	0.366**	0.274**	0.360**	0.380**	0.299**	0.357**	1
* p<0.05 ** p<0.01										

These bivariate findings offer initial support for the hypothesized relationships outlined in the theoretical framework. However, it is important to note that correlation coefficients merely capture pairwise linear associations and do not establish causality or account for potential confounding variables. Therefore, the specific magnitude, directionality, and underlying mechanisms of these effects warrant further investigation through multivariate analytical techniques, such as structural equation modeling or regression analysis, to validate the proposed causal pathways and assess the unique explanatory contribution of each antecedent variable.

4.2 Structural Equation Modeling Analysis

The results of the main effects analysis are shown in the Table 4 below. The results indicate that the structural equation model constructed in this study fits well overall, with all fit indices meeting or exceeding the reference standards. Specifically, the χ^2/df ratio is 1.255 (<5), the SRMR is 0.062 (<0.08), the RMSEA is 0.020 (<0.05), the CFI is 0.993, and the TLI is 0.992 (both > 0.9). This indicates a high degree of fit between the model and the data, a sound overall model structure, and an effective capture of the relationships among the variables in the data.

Table 4. Table of Overall Fit Indices for the Structural Equation Model

Indicator Categories	Fitting metrics	Fitted values	Reference value	Fit Status
Overall Model Metrics	χ^2/d	1.255	<3	Fit
Measures of Goodness of Fit	SRMR	0.062	<0.1	Fit
Simplicity-based Goodness-of-fit measures	RMSEA	0.020	<0.10	Fit
Value-Added Fit Index	CFI	0.993	>0.9	Fit
	TLI	0.992	>0.9	Fit

The specific results of the model regression are shown in the Table 5 below:

Table 5. Summary of Model Regression Coefficients

X	→	Y	Unstandardized regression coefficients	SE	z (CR-value)	p	Standardized regression coefficient
Marketing Objectives	→	Perceived value	0.264	0.041	6.508	0.000	0.258
Marketing Objectives	→	Decision-making efficiency	0.236	0.040	5.900	0.000	0.230
Marketing Objectives	→	Safe and reliable	0.159	0.041	3.847	0.000	0.155
System Algorithms	→	Perceived value	0.189	0.039	4.889	0.000	0.193
System Algorithms	→	Decision-making efficiency	0.247	0.038	6.477	0.000	0.251
System Algorithms	→	Safe and reliable	0.206	0.039	5.215	0.000	0.209
Service System	→	Perceived value	0.169	0.039	4.345	0.000	0.168
Service System	→	Decision-making efficiency	0.178	0.038	4.659	0.000	0.177
Service System	→	Safe and reliable	0.200	0.040	5.033	0.000	0.198
Perceived value	→	Consumer purchasing behavior	0.098	0.036	2.725	0.006	0.103
Decision-making efficiency	→	Consumer purchasing behavior	0.203	0.036	5.610	0.000	0.213
Safe and reliable	→	Consumer purchasing behavior	0.174	0.035	4.899	0.000	0.182
Platform Proficiency	→	Consumer purchasing behavior	0.180	0.036	4.996	0.000	0.189

The path analysis results revealed that all paths exhibited p-values of 0.000 (i.e., $p < 0.001$), with z-scores (critical ratios, CR values) significantly exceeding the critical threshold of 1.96, indicating that the causal relationships among variables possess high statistical robustness.

Regarding direct effect magnitudes, marketing objectives demonstrated the strongest impact on perceived value ($\beta = 0.258$, $p < 0.001$), suggesting that well-defined marketing objectives substantially enhance consumers' cognitive appraisal of product or service value. System algorithms exhibited the most pronounced effect on decision-making efficiency ($\beta = 0.251$, $p < 0.001$), demonstrating that intelligent recommendation algorithms play a pivotal role in optimizing consumers' information processing and reducing decision time.

At the consumer behavior level, perceived value ($\beta = 0.103$, $p = 0.006$), decision-making efficiency ($\beta = 0.213$, $p < 0.001$), and safety and reliability ($\beta = 0.182$, $p < 0.001$) all demonstrated significant positive effects on purchasing behavior. Furthermore, platform familiarity significantly and positively predicted consumer purchasing behavior ($\beta = 0.189$, $p < 0.001$), indicating that consumers' cognitive trust and familiarity with the platform effectively facilitate the transformation of purchase intentions.

In conclusion, these empirical findings provide robust empirical support for Hypotheses H1, H2, H3, and H4, respectively, confirming the positive mechanism through which antecedent variables influence purchasing behavior within the theoretical model.

Table 6. Testing the Mediating Effect Model

	Consumer purchasing behavior	Safe and reliable	Decision-making efficiency	Consumer purchasing behavior
Constant	1.144**	1.462**	0.931**	0.852**
Platform Proficiency	0.137**	0.140**	0.206**	0.097*
Service System	0.153**	0.130**	0.138**	0.122**
System Algorithms	0.187**	0.152**	0.195**	0.147**
Marketing Objectives	0.179**	0.125**	0.179**	0.143**
Safe and reliable				0.132**
Decision-making efficiency				0.105**
Sample size	643	643	643	643
R^2	0.233	0.156	0.257	0.260
Adjust R^2	0.228	0.151	0.252	0.253
F-value	48.485	29.580	55.141	37.250

* $p < 0.05$ ** $p < 0.01$

This study employed the Bootstrap resampling technique (5,000 iterations) to rigorously examine the proposed dual parallel mediation model, wherein platform safety/reliability and decision-making efficiency were posited as simultaneous mediators linking platform characteristics to consumer purchasing behavior. The analytical results substantiate that both mediators exerted significant partial mediation effects, thereby

illuminating the underlying psychological mechanisms through which platform attributes translate into behavioral outcomes.

Specifically, the results of the structural model in Table 6 show that this service system ($\beta = 0.153$, $p < 0.01$), system algorithms ($\beta = 0.187$, $p < 0.01$), and marketing objectives ($\beta = 0.179$, $p < 0.01$) demonstrated significant positive total effects on consumer purchasing behavior. Upon incorporating the dual mediators into the model, the direct effects of these antecedent variables on purchasing behavior exhibited expected attenuation (coefficients decreasing to 0.122, 0.147, and 0.143, respectively), yet remained statistically significant ($p < 0.01$). Concurrently, both safety/reliability ($\beta = 0.132$, $p < 0.01$) and decision-making efficiency ($\beta = 0.105$, $p < 0.01$) maintained significant positive influences on purchasing behavior. This pattern of results—wherein direct effects persist but are diminished following mediator inclusion—confirms the operation of partial mediation, indicating that platform features influence consumer behavior through multiple pathways, both direct and indirect.

To ensure the robustness of these findings and isolate the net effects attributable to the core quality dimensions, "platform proficiency" was incorporated as a control variable within the regression framework. The results demonstrated that, after accounting for potential confounding associated with user expertise, the dual parallel mediation pathways remained statistically significant and directionally consistent. This robustness check validates hypotheses H5d through H5i, which posit the mediating roles of safety/reliability and decision-making efficiency. Conversely, hypotheses H5a through H5c, which anticipated complete mediation, were not supported by the empirical evidence; a preliminary theoretical explanation for this non-validation will be articulated in subsequent sections, likely reflecting the persistence of direct platform-to-behavior relationships unaccounted for by the proposed mediators.

While the present analysis confirms the existence and significance of the mediation effects, it does not elucidate whether the strength of these mediated relationships is contingent upon contextual or individual difference factors. To ascertain whether moderating variables significantly influence the mediated pathways and to comprehensively characterize the conditional nature of these mechanisms, the following section presents moderated mediation analyses.

Table 7. Analysis of Moderation Effects

Variable name	Model A (Perceived Value)	Model B (Decision Efficiency)	Model C (Safe and Reliable)
independent variable	0.187**	0.218**	0.230**
Platform Proficiency	0.221**	0.222**	0.251**
Perceived Value $\times$ Platform Proficiency	-0.147**	-	-
Decision-making efficiency $\times$ Platform proficiency	-	-0.088**	-
Safety and Reliability $\times$ Platform Proficiency	-	-	-0.032
R^2	0.171	0.173	0.164
ΔR^2	0.024	0.011	0.001
F-value	43.802**	44.712**	41.876**

The results of the moderation analysis are presented in the Table 7 above. For Model A, the findings indicate that platform proficiency exerts a significant negative moderating effect on the positive facilitating relationship between perceived value and the outcome variable ($\beta = -0.147$, $p < 0.01$). Similarly, Model B reveals a significant negative moderating effect of platform proficiency on the positive facilitating relationship between decision efficiency and the outcome variable ($\beta = -0.088$, $p < 0.01$). These results suggest that as users' proficiency with the platform increases, the beneficial impacts of perceived value and decision efficiency on the outcome are attenuated.

In contrast, Model C demonstrates that the interaction term between safety and reliability and platform proficiency does not reach statistical significance ($\beta = -0.032$, $p > 0.05$), indicating that platform proficiency does not significantly moderate the relationship between safety and reliability and the outcome variable.

Furthermore, all three regression models exhibit satisfactory overall statistical significance (Model A: $F = 43.802$, $p < 0.01$; Model B: $F = 44.712$, $p < 0.01$; Model C: $F = 41.876$, $p < 0.01$). The adjusted R^2 values for Models A, B, and C are 0.171, 0.173, and 0.164, respectively, suggesting that the models possess acceptable explanatory power for the variance in the outcome variable.

5 Conclusions

In the current e-commerce landscape, high-quality platform features are the most significant factor influencing consumer purchasing decisions. In this era of rapid internet development, "system algorithms" exert the strongest influence on purchasing behavior, demonstrating that platforms have resolved many issues related to purchasing through precise algorithms. Empirical results indicate that marketing objectives, system algorithms, and service systems all have a significant positive impact on consumer purchasing behavior. This finding confirms that the three dimensions of platform quality, acting as external stimuli, can collectively drive consumers' purchasing intentions through different pathways, aligning with the core proposition of the S-O-R theory regarding external stimuli triggering behavioral responses.^[2,3]

Platform familiarity moderates the mediating effects of safety and reliability and decision-making efficiency throughout the model, while the mediating effect of perceived value is not significant. Further analysis of specific mediating pathways reveals that perceived value is effective only for new users; once users gradually become regular customers, the effect of perceived value ceases to function, which explains why its mediating effect is not significant. Decision-making efficiency influences both new and regular users, but for regular customers, improvements in decision-making efficiency have little impact on their decisions; Safety and reliability have little impact on new users, primarily serving to stimulate interest. As users become more familiar with the platform, only a sufficiently safe platform can encourage repeat purchases from loyal customers. This finding reveals that platform quality does not directly determine purchasing behavior but must be transformed through consumers' internal psychological evaluations—the "organismic level"—and effectively addresses the limitation in existing research where "average effects mask individual differences."

This study empirically confirms the moderating role of platform familiarity as a boundary condition. For the first time in research on e-commerce platform quality, platform familiarity was introduced as a second-order moderator, and the study demonstrated that it exerts a significant positive moderating effect on all three mediating pathways—perceived value, decision efficiency, and safety and reliability. This reveals the existence of conditional indirect effects and deepens our theoretical understanding of the mechanisms underlying purchasing behavior. Here are some recommendations for users of varying skill levels:

In the early stages of customer acquisition, the platform should focus its resources on creating a premium user experience and minimalist design. For example, it can attract new users through exclusive welcome offers and clear, straightforward selling points, while leveraging robust technology to enable features like search and one-click adding to cart, thereby lowering the barrier to entry and driving first-order conversions.

For long-time users, the platform should minimize flashy pop-ups and certain discount promotions, as these have become largely ineffective due to user desensitization. The operational focus should shift toward building deep trust assets. This can be achieved by establishing more transparent privacy and data protection policies, as well as stricter merchant qualification standards to ensure safety, thereby transforming long-term trust into customer loyalty.

Simultaneously, the platform should incorporate enhancing user proficiency into its long-term user engagement strategy. Through mechanisms such as reward points, usage tutorials, and feature guidance, it should proactively accelerate consumers' progression from low to high proficiency, thereby increasing product stickiness and usage depth. This, in turn, will improve user retention rates and lay the foundation for the platform to achieve sustainable user growth and commercial monetization.

This study still has the following limitations, which point to directions for future research. First, this study uses cross-sectional survey data, which cannot track the dynamic changes in the pathway through which platform proficiency influences purchasing behavior over time. Future research could incorporate longitudinal tracking designs or experimental studies to enhance the credibility of causal inferences. Second, this study uses Chinese consumers as its sample; the generalizability of the findings across different cultural contexts and platform ecosystems requires verification through cross-cultural comparative research.

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