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Trust Formation in O2O Commerce: The Conditional Role of Brand Familiarity on Consumer Responses to Marketing Cues

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Abstract:

The integration of online and offline channels in O2O commerce increases the complexity of customer trust formation, as consumers must interpret multiple cross-channel cues when interacting with platforms. While prior research has examined the direct influence of O2O marketing mix elements on trust, limited attention has been given to how consumers' prior brand knowledge shapes cue reliance. This study investigates the conditional and selective role of brand familiarity in moderating the relationships between five O2O marketing mix dimensions—product, price, promotion, service, and convenience—and customer trust among Generation Z consumers in China. Survey data from 210 respondents with integrated online-offline shopping experience were analyzed using partial least squares structural equation modeling (PLS-SEM). Results indicate that product, price, and service positively affect trust, with service exerting the strongest influence; promotion negatively affects trust, likely due to perceived manipulation or discount skepticism, while convenience shows no significant effect, reflecting its role as a baseline expectation for digitally savvy consumers. Brand familiarity selectively moderates trust formation, significantly strengthening the service-trust relationship, but showing no significant effect on product, price, promotion, or convenience. This study contributes theoretically by refining the stimulus-organism-response framework to account for heterogeneous and conditional trust formation mechanisms, and practically by guiding platforms to differentiate trust-building strategies based on consumer familiarity—emphasizing service quality for low-familiarity consumers and maintaining product consistency for high-familiarity consumers, while treating promotion and convenience with appropriate caution.

Keywords: O2O commerce, O2O marketing mix, brand familiarity, customer trust, Generation Z

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INTRODUCTION

The rapid integration of online and offline channels has fundamentally transformed consumer decision-making processes, particularly within online-to-offline (O2O) commerce environments. Unlike traditional single-channel contexts, O2O commerce requires consumers to navigate and reconcile information obtained from multiple touchpoints, including digital platforms, physical stores, and cross-channel service interactions. While such integration enhances convenience and enriches the overall shopping experience, it also introduces additional layers of uncertainty, as consumers must assess whether online information is consistent with offline experiences. Consequently, trust formation in O2O settings becomes more complex and increasingly dependent on how consumers interpret and integrate multiple cross-channel cues (Wang & Wang, 2024).

Existing research has explored how O2O marketing mix elements—such as product, price, promotion, service, and convenience—influence customer perceptions and behavioral outcomes. Prior studies suggest that consistent product quality, transparent pricing, and reliable service contribute to favorable evaluations and strengthen consumers' confidence in cross-channel transactions (Chen, Su, Li, Wu, Zheng, & Xu, 2022; Myung & Kim, 2022; Li, Shia, & Badiane, 2020). However, this stream of research largely assumes that consumers process marketing-related cues in a relatively uniform manner. Such an assumption overlooks the fact that consumers differ in their prior knowledge, experience, and cognitive engagement with brands, which can significantly influence how they interpret and rely on different cues when forming judgments (Song, Mo, Liu, & Fu, 2025; Wang & Wang, 2024). As a result, existing studies provide limited insight into the conditional mechanisms underlying trust formation, particularly regarding how consumers adjust their reliance on different cues under varying cognitive conditions.

Brand familiarity, defined as consumers' accumulated knowledge and experience with a brand through repeated exposure and interactions, plays a critical role in shaping information processing and evaluation (Kareem & Venugopal, 2023; Ladeira, Krywalski-Santiago, Santini, & Pinto, 2025). Prior research has primarily examined brand familiarity as a direct antecedent of attitudes and trust. However, growing evidence suggests that familiarity also functions as a cognitive filter that influences how consumers process and prioritize available information. Consumers with high brand familiarity tend to rely more on prior knowledge and stored experiences, whereas those with low familiarity depend more heavily on observable and experiential cues when evaluating products and services (Zhang, Wen, Hou, 2021; Wu, Hu, Li, Yuan, 2024). Despite its theoretical relevance, empirical research explicitly examining the conditional role of brand familiarity in shaping cue reliance within O2O trust formation remains limited.

The O2O context further amplifies the importance of such conditional mechanisms. Unlike purely online environments, O2O commerce involves cross-channel verification processes in which consumers compare online promises with offline experiences. Any inconsistency between these channels may increase perceived uncertainty and require consumers to rely on available cues to evaluate reliability. In this process, brand familiarity can reduce cognitive uncertainty and guide interpretation by serving as a heuristic that simplifies decision-making. Highly familiar consumers are more likely to depend on accumulated knowledge, whereas less familiar consumers place greater emphasis on real-time experiential cues, particularly those related to service interactions and perceived consistency across channels (García-Madariaga, Simón Sandoval, & Moya Burgos, 2024; Sansome, Conduit, & Wilkie, 2025). This suggests that trust formation in O2O contexts is not uniform but contingent upon consumers' familiarity with the brand.

Drawing on the Stimulus–Organism–Response (SOR) framework (Mehrabian & Russell, 1974), this study conceptualizes O2O marketing mix elements as external stimuli, customer trust as an internal evaluative state, and brand familiarity as a cognitive condition that shapes how stimuli are processed. Within this framework, trust is formed not only as a direct response to marketing cues but also as a result of how consumers interpret and prioritize these cues under different familiarity conditions. This perspective enables a more nuanced understanding of trust formation as a contingent and cognitively driven process rather than a uniform outcome.

Focusing on Generation Z consumers in China, this study examines how brand familiarity moderates the relationships between key O2O marketing mix dimensions—product, price, promotion, service, and convenience—and customer trust. Generation Z consumers are particularly relevant in this context, as they are highly engaged in cross-channel shopping and exhibit strong sensitivity to inconsistencies between online information and offline experiences (Guerra-Tamez, Kraul Flores, Serna-Mendiburu, Chavelas Robles, & Ibarra Cortés, 2024). Their reliance on both cognitive evaluation and experiential validation makes them an appropriate group for investigating how familiarity shapes trust formation mechanisms in integrated retail environments.

This study makes three primary contributions. First, it advances O2O marketing research by shifting the focus from direct effects to conditional trust formation mechanisms, emphasizing the role of consumer cognition in shaping cue interpretation. Second, it extends the literature on brand familiarity by conceptualizing it as a cognitive filter that selectively influences the importance of different trust cues, rather than uniformly strengthening trust. Third, it offers practical implications for firms operating in O2O environments by demonstrating that trust-building strategies should be aligned with consumers' familiarity levels, particularly when targeting digitally sophisticated Generation Z consumers (Lim, Lew, Leow, Lee, Li, Sharma, & Kee, 2024; Imran, 2024).

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

O2O Marketing Mix and Customer Trust Formation

This study is grounded in the Stimulus–Organism–Response (SOR) framework, which explains how environmental stimuli influence individuals' internal cognitive and affective states, thereby shaping behavioral responses (Mehrabian & Russell, 1974). Within this framework, external cues do not directly determine behavior; rather, they are cognitively interpreted by consumers before influencing subsequent responses (Mehrabian & Russell, 1974; Eroglu, Machleit, & Davis, 2003). In O2O commerce, where consumers must reconcile information across online and offline channels, this cognitive evaluation process becomes particularly critical.

In this study, O2O marketing mix elements are conceptualized as stimuli, while customer trust represents the organism, reflecting consumers' cognitive evaluation of platform reliability, integrity, and competence. Trust, in turn, plays a central role in reducing perceived uncertainty in cross-channel environments. Importantly, the SOR framework also implies that consumers do not process stimuli uniformly. Instead, their interpretations depend on prior cognitive conditions, suggesting that the effects of marketing cues on trust may vary across individuals (Mehrabian & Russell, 1974; Wu et al., 2024).

Traditionally, McCarthy's (1960) 4Ps framework includes product, price, promotion, and place. However, in O2O environments, the role of "place" has evolved due to digital accessibility and channel integration. Consumers can interact with platforms anytime and anywhere, making service and convenience more relevant dimensions for capturing cross-channel experiences (Yang, Gong, Land, & Chesney, 2020; Liu & Sun, 2023). Accordingly, this study adopts a five-dimensional O2O marketing mix—product, price, promotion, service, and convenience—as key stimuli influencing trust formation.

From a cue utilization perspective, consumers rely on different types of cues to infer trustworthiness under uncertainty (Kakaria, Simonetti, & Bigné, 2024). In O2O contexts, where information asymmetry is inherent, marketing mix elements function as diagnostic signals that help consumers evaluate whether a platform can be relied upon. The extent to which these cues influence trust depends on their ability to reduce uncertainty and signal credibility.

Product-related cues provide intrinsic signals regarding quality, reliability, and consistency across channels. When online product descriptions align with offline experiences, consumers perceive lower performance risk and greater predictability, thereby strengthening trust in the platform. Prior studies have shown that product quality and cross-channel consistency are important factors associated with trust formation in O2O and e-commerce contexts (Chen et al., 2022; Li et al., 2020).

H1a: Product positively influences customer trust.

Price serves as an extrinsic cue reflecting fairness, transparency, and the absence of opportunistic behavior. In O2O environments, consistent pricing across online and offline channels signals integrity and reduces consumer suspicion. Although price evaluations often involve rational comparisons, transparent pricing has been found to enhance perceptions of fairness and credibility, thereby fostering trust (Myung & Kim, 2022).

H1b: Price positively influences customer trust.

Promotion provides persuasive signals designed to attract consumer attention, but its effect on trust can be ambiguous. While excessive or inconsistent promotions may trigger skepticism, coordinated and transparent promotional strategies can signal value consistency and enhance platform credibility. Empirical studies suggest that well-aligned promotional activities in O2O contexts are generally associated with higher perceived value and trust (Chen et al., 2022).

H1c: Promotion positively influences customer trust.

Service represents an experiential cue reflecting platform responsiveness, professionalism, and reliability. In O2O environments, where consumers engage with both online and offline service interfaces, consistent and high-quality service provides tangible evidence of competence and trustworthiness. Prior research has demonstrated that service quality is a key driver of trust in both online and offline retail settings (Chen et al., 2022; Hsu, Yu, Tung, & Chen, 2024).

H1d: Service positively influences customer trust.

Convenience captures the ease and efficiency of cross-channel transactions. While convenience may increasingly function as a baseline expectation in digital environments, seamless and efficient processes still signal operational competence and reliability. Existing studies indicate that perceived convenience contributes to positive consumer evaluations and trust, although its effect may be relatively weaker compared to other factors (Liu & Sun, 2023; Myung & Kim, 2022).

H1e: Convenience positively influences customer trust.

Although these relationships are theoretically grounded, the SOR framework suggests that stimulus effects are not uniform across consumers. Instead, individuals may interpret and prioritize different cues based on their prior knowledge and experience, highlighting the need to consider moderating mechanisms in trust formation.

Brand Familiarity as a Moderating Variable

Brand familiarity refers to consumers' accumulated knowledge, recognition, and experience with a brand developed through repeated exposure and prior interactions (Kareem & Venugopal, 2023; Ladeira et al., 2025). It reflects the extent to which a brand is cognitively accessible and easily processed in consumers' memory structures. Higher levels of familiarity reduce information asymmetry and perceived uncertainty, enabling consumers to process brand-related information more efficiently and with lower cognitive effort (Ladeira et al., 2025; Wu et al., 2024).

Within the SOR framework, brand familiarity can be conceptualized as a pre-existing cognitive condition that shapes how external stimuli are interpreted. While marketing mix elements function as stimuli and customer trust represents an internal cognitive evaluation, the SOR perspective implies that responses may vary depending on consumers' internal cognitive states. Instead, consumers' prior knowledge structures influence how they attend to, interpret, and evaluate external cues (Mehrabian & Russell, 1974). Therefore, brand familiarity plays a critical role in determining the strength and direction of the relationships between O2O marketing mix elements and customer trust.

From a cue utilization perspective, consumers rely on both intrinsic and extrinsic cues when forming judgments, particularly under conditions of uncertainty (Kakaria, Simonetti, & Bigné, 2024). When brand familiarity is low, consumers lack sufficient prior knowledge and are therefore more dependent on observable and experiential cues—such as product quality, service interactions, and promotional signals—to infer trustworthiness. In contrast, when familiarity is high, consumers rely more on accumulated knowledge and prior experiences, using them as cognitive shortcuts. As a result, they are less reliant on external cues, particularly those perceived as less diagnostic or more susceptible to manipulation.

Importantly, brand familiarity does not uniformly strengthen all cue effects. Instead, it reallocates the relative importance of different cues depending on their diagnostic value and the consumer's existing knowledge. prior research suggests that familiarity can enhance the weight of certain intrinsic cues (e.g., product quality) while simultaneously reducing reliance on experiential or peripheral cues (Wu et al., 2024; García-Madariaga, Simón Sandoval, & Moya Burgos, 2024; Sansome, Conduit, & Wilkie, 2025).

Specifically, brand familiarity is expected to strengthen the effect of product cues on trust. Product-related information is closely tied to core performance attributes and serves as a primary basis for evaluating reliability. When consumers are familiar with a brand, they are more likely to interpret product consistency as confirmatory evidence of their prior beliefs, thereby increasing the diagnostic value of product cues. Empirical research supports this view, showing that familiarity enhances the influence of intrinsic product attributes on consumer evaluations (Wu et al., 2024; García-Madariaga, Simón Sandoval, & Moya Burgos, 2024).

H2a: Brand familiarity moderates the relationship between product and customer trust, such that the relationship is stronger when brand familiarity is high.

In contrast, the moderating effect of familiarity on price is expected to be relatively limited. Price evaluations often involve objective comparisons across alternatives and are less dependent on prior brand knowledge. Even when consumers are familiar with a brand, they may still engage in rational price comparisons to assess value and fairness. As a result, familiarity is less likely to substantially alter how price cues influence trust. Prior studies indicate that price-based judgments tend to rely more on comparative evaluation processes than on accumulated brand knowledge (Song et al., 2025).

H2b: Brand familiarity moderates the relationship between price and customer trust.

For promotion, brand familiarity may reduce its influence on trust formation. Promotional activities are often perceived as persuasive attempts that may be subject to strategic manipulation. When consumers are highly familiar with a brand, they are more likely to interpret promotional messages with skepticism, drawing on prior experiences to evaluate their credibility. Consequently, the reliance on promotional cues decreases as familiarity increases. This is consistent with research suggesting that familiarity can increase resistance to persuasive communication and reduce the effectiveness of promotional signals (Sansome, Conduit, & Wilkie, 2025; Song et al., 2025).

H2c: Brand familiarity moderates the relationship between promotion and customer trust, such that the relationship is weaker when brand familiarity is high.

Similarly, brand familiarity may weaken the role of service cues in shaping trust. Service interactions provide experiential evidence of platform reliability, which is particularly important when uncertainty is high. However, when consumers are already familiar with a brand, their reliance on service encounters as a basis for trust decreases, as prior knowledge already reduces uncertainty. Empirical studies suggest that familiarity diminishes the dependence on experiential cues, as consumers rely more on established beliefs rather than situational experiences (Wu et al., 2024).

H2d: Brand familiarity moderates the relationship between service and customer trust, such that the relationship is weaker when brand familiarity is high.

Finally, the moderating effect of familiarity on convenience is expected to be limited. In highly digitalized O2O environments, convenience has increasingly become a baseline expectation rather than a distinguishing factor. As such, its influence on trust may remain relatively stable regardless of consumers' familiarity with the brand. Prior research indicates that when a factor becomes a standard feature of the consumption experience, its impact is less sensitive to individual differences such as familiarity (Liu & Sun, 2023).

H2e: Brand familiarity moderates the relationship between convenience and customer trust.

Conceptual Framework

Based on the above theoretical arguments, this study proposes a conceptual framework in which the five dimensions of the O2O marketing mix—product, price, promotion, service, and convenience—serve as stimuli influencing customer trust, while brand familiarity moderates these relationships.

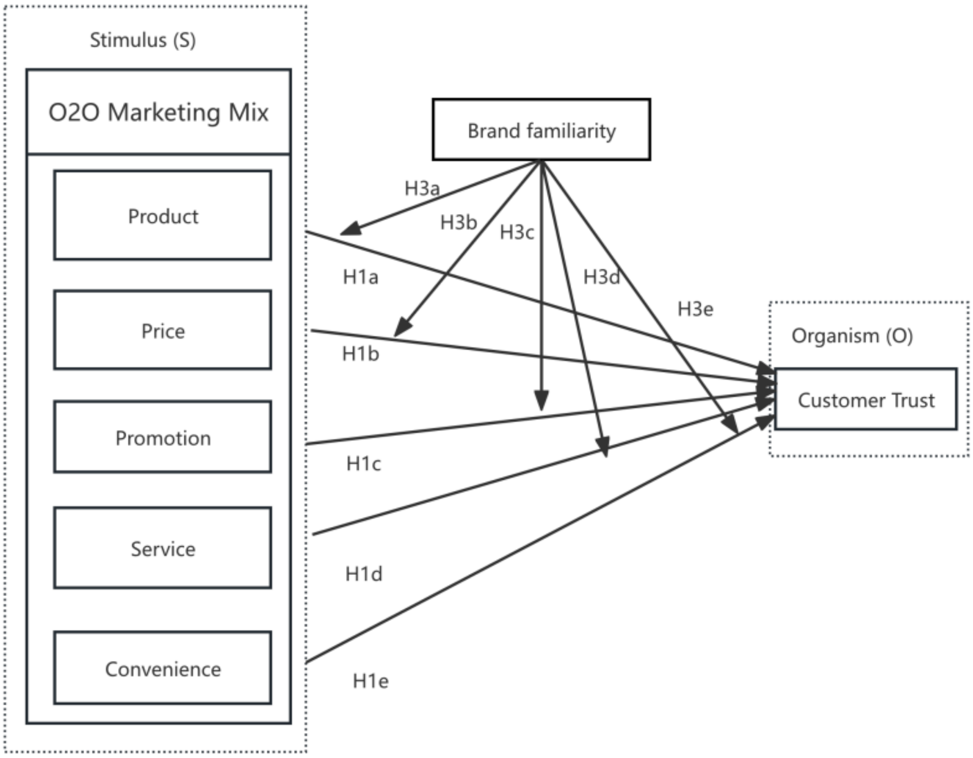

Figure 1: Conceptual Framework

METHODOLOGY

Research Design

This study adopts a quantitative research design using a structured questionnaire to examine customer trust formation in O2O retail environments. In particular, the study focuses on the moderating role of brand familiarity in shaping the relationships between O2O marketing mix elements and customer trust.

A survey-based approach was considered appropriate, as it enables the systematic collection of standardized data from a large number of respondents and facilitates statistical analysis of relationships among variables.

Sampling and Data collection

The target population of this study is Generation Z consumers in China, typically defined as individuals born between 1995 and 2009, corresponding to an age range of approximately 16 to 30 years in August 2025, the time of data collection. However, in line with ethical considerations and Chinese legal requirements, only respondents aged 18 years and above and not older than 30 years were retained in the final sample to ensure that all participants were legally capable of providing informed consent. This group was selected for three main reasons. First, Generation Z consumers have grown up in highly digitalized environments and are deeply engaged with platform-based consumption. Second, they frequently switch between online and offline channels during information search and purchasing processes, making them particularly suitable for evaluating trust formation in O2O contexts. Third, their familiarity with mobile applications and social media platforms facilitates participation in online surveys.

To ensure that respondents possessed relevant experience, purposive sampling was adopted. Participants were required to meet two criteria: (1) belonging to Generation Z, and (2) having completed both online and offline transactions through the same e-commerce platform. Additionally, respondents were asked to recall a recent O2O shopping experience to provide context-specific evaluations.

The questionnaire was distributed online via WeChat, one of the most widely used social media platforms among young consumers in China. WeChat was selected due to its high penetration among Generation Z users and its effectiveness in reaching digitally active consumers with O2O shopping experience. Its convenient sharing functions also facilitated efficient dissemination of the survey.

A total of 226 responses were collected. After removing incomplete, inconsistent, and ineligible responses (i.e., respondents younger than 18 or older than 30), 210 valid questionnaires were retained for analysis. Due to the online distribution of the questionnaire through social media channels, the total number of individuals who received the survey could not be accurately tracked; therefore, the response rate could not be calculated. Nevertheless, the final sample size exceeds the minimum requirement suggested by G*Power analysis and is considered adequate for partial least squares structural equation modelling (PLS-SEM) (Hair, Hult, Ringle, & Sarstedt, 2022).

A summary of respondents' demographic characteristics is presented in Table 1. The sample profile indicates that the respondents are predominantly young and digitally active consumers with relevant O2O shopping experience, supporting the appropriateness of the sample for this study.

Table 1: Demographic Characteristics of Generation Z Respondents

Characteristic	Category	Frequency (%)
Age	18-30	100
Gender	Female	58.72
Education	Associate/Bachelor	94.04
Monthly Income	RMB 3,000–8,000	57.87
Occupation	Enterprise/Public Institution	61.28

Measurement of Variables

A structured questionnaire was developed based on previously validated scales, with modifications to reflect the O2O retail context. All items were measured using a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree).

The O2O marketing mix was conceptualized as a five-dimensional construct comprising product, price, promotion, service, and convenience. Measurement items were adapted from Chen et al. (2022). Specifically, the product dimension was measured using six items, while price, promotion, service, and convenience were each measured using five items.

The product dimension captures perceptions of consistency in product quality, availability, and variety across online and offline channels. Price reflects perceived fairness, transparency, and comparability across channels. Promotion measures evaluations of promotional timing, types, and frequency. Service assesses responsiveness, professionalism, and reliability of service interactions. Convenience captures the ease and efficiency of cross-channel transactions, including payment, delivery, return, and pickup processes.

Customer trust was measured using six items adapted from Chen et al. (2022), reflecting perceptions of platform integrity, reliability, competence, and consumer protection.

Brand familiarity was incorporated as a moderating variable and measured using five items adapted from Kim, Min, and Le (2022). The scale captures consumers' accumulated exposure to and interaction with the platform, including advertising exposure, word-of-mouth, recommendations, product encounters, and prior purchasing experience.

Prior to full data collection, the questionnaire was pre-tested with marketing scholars, experienced O2O consumers, and e-commerce practitioners to refine wording and ensure clarity and content validity.

Data Analysis

The data were analyzed using partial least squares structural equation modeling (PLS-SEM), which is appropriate for examining complex relationships among multiple constructs and testing moderating effects. PLS-SEM is particularly suitable for exploratory research and does not require strict assumptions of data normality. In addition, it performs well with relatively small sample sizes and complex models (Hair et al., 2022).

RESULTS

Measurement Model Assessment

Before testing the structural relationships, the measurement model was evaluated to ensure reliability and validity. As shown in Table 2, all indicator loadings exceeded 0.65 and were statistically significant, indicating satisfactory indicator reliability. Composite reliability (CR) values ranged from 0.839 to 0.950, exceeding the recommended threshold of 0.7 and confirming adequate internal consistency (Hair, Hollingsworth, Randolph, & Chong, 2017; Hair et al., 2022). Average variance extracted (AVE) values ranged from 0.510 to 0.775, surpassing the recommended minimum of 0.5 and supporting convergent validity (Fornell & Larcker, 1981).

Discriminant validity was assessed using both the Fornell–Larcker criterion and the heterotrait–monotrait ratio (HTMT). The square roots of AVE for each construct exceeded their correlations with other constructs, and all HTMT values were below 0.85, confirming discriminant validity (Henseler, Ringle, & Sarstedt, 2015). Common method bias was examined using Harman's single-factor test, which indicated that no single factor accounted for the majority of the variance, suggesting that common method bias was unlikely (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Table 2: Measurement Model: Composite Reliability and AVE

Construct	Composite Reliability (CR)	Average Variance Extracted (AVE)
Product	0.910	0.627
Price	0.922	0.704
Promotion	0.945	0.775
Service	0.926	0.717
Convenience	0.839	0.510
Brand familiarity	0.936	0.744
Customer Trust	0.950	0.772

Note: All indicator loadings were statistically significant (0.659–0.909). Discriminant validity was confirmed; AVE square roots exceeded inter-construct correlations, and all HTMT values were below 0.85.

Structural Model Assessment

The structural model was evaluated following Hair et al.'s (2022) five-step procedure, including multicollinearity assessment, path significance testing, coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2).

Multicollinearity was examined using the variance inflation factor (VIF), with values ranging from 2.006 to 3.445, all below the recommended threshold of 5, indicating no multicollinearity concerns (Hair et al., 2022).

Structural path estimates and moderating effects of brand familiarity are presented in Table 3. Product, price, and service exerted significant positive effects on customer trust, whereas promotion showed a significant negative effect, and convenience did not significantly influence trust. Regarding moderating effects, brand familiarity significantly strengthened the product–trust relationship and weakened the service–trust relationship, while its moderating effects on price, promotion, and convenience were not statistically significant.

Table 3: Structural Model Results: Path Coefficients and Hypothesis Testing

Path	β	T	P	Hypothesis
Product-> Customer Trust	0.148	2.162	0.015	Supported
Price -> Customer Trust	0.150	1.817	0.035	Supported
Promotion -> Customer Trust	-0.215	3.164	0.001	Not Supported
Service -> Customer Trust	0.492	7.298	0.000	Supported
Convenience -> Customer Trust	0.056	0.960	0.169	Not Supported
Brand Familiarity x Product -> Customer Trust	0.117	1.683	0.046	Supported
Brand Familiarity x Price -> Customer Trust	0.041	0.428	0.334	Not Supported
Brand Familiarity x Promotion -> Customer Trust	0.003	0.037	0.485	Not Supported
Brand Familiarity x Service -> Customer Trust	-0.207	2.950	0.002	Supported
Brand Familiarity x Convenience -> Customer Trust	0.031	0.462	0.322	Not Supported

The model demonstrated substantial explanatory power, with the O2O marketing mix dimensions explaining 65.7% of the variance in customer trust ($R^2 = 0.657$), indicating strong explanatory capacity (Chin, 1998; Cohen, 1988).

Effect size analysis indicated a large effect of service on customer trust ($f^2 = 0.301$), while product, price, and promotion exhibited small effects, and convenience showed a negligible effect. The moderating effect of brand familiarity was small but observable for the service–trust relationship ($f^2 = 0.065$) and negligible for other paths.

Predictive relevance was supported, as all Q^2_predict values for customer trust indicators exceeded zero (0.390–0.499), and RMSE and MAE values were within acceptable ranges, indicating stable out-of-sample predictive performance (Hair et al., 2022; Shmueli, Hair, Ting, & Ringle, 2019).

Overall, the structural model demonstrated satisfactory explanatory and predictive performance, providing a sound basis for the subsequent discussion.

DISCUSSION AND CONCLUSION

Summary of Key Findings

This study investigates customer trust formation in O2O environments among Generation Z consumers in China, with a particular focus on how brand familiarity moderates the influence of marketing mix elements. The results indicate that product, price, and service cues significantly influence trust, whereas promotion exhibits a negative effect and convenience shows no significant impact.

The negative effect of promotion suggests that in O2O contexts, frequent, aggressive, or inconsistent promotional activities may be interpreted by consumers as manipulative tactics, opportunistic pricing, or indicators of lower product quality (Cao, Chu, Hui, & Xu, 2021; Voigt, Schlögl, & Groth, 2021). Generation Z consumers, who actively compare information across channels, are particularly sensitive to such cues (Fromm & Read, 2018), which explains why promotion can undermine rather than enhance trust in certain circumstances.

The non-significant effect of convenience implies that ease of cross-channel transactions has become a baseline expectation (Pantano & Priporas, 2016). While poor convenience could reduce trust, improvements beyond the expected level do not significantly enhance perceptions of platform reliability, consistent with the notion of convenience as a “hygiene factor” in digital commerce.

Regarding moderation, brand familiarity significantly moderates only the service–trust relationship. High familiarity reduces reliance on real-time experiential cues, such as service interactions, as accumulated brand knowledge partially substitutes for direct experience (Wu et al., 2024; García-Madariaga, Simón Sandoval, & Moya Burgos, 2024). Conversely, when familiarity is low, service quality becomes a critical determinant of trust, helping to reduce uncertainty and provide tangible signals of platform reliability. The moderating effect of familiarity on other paths—product, price, promotion, and convenience—is not statistically significant, indicating that familiarity’s influence is selective and context-dependent rather than universal.

Discussion

The findings highlight that trust formation in O2O environments is not uniform; rather, consumers adjust their reliance on different cues based on prior brand knowledge, consistent with the SOR framework. Marketing stimuli, such as product performance or service quality, are cognitively interpreted before influencing trust (Tsai, Wang, Lin, & Choub, 2015), and brand familiarity shapes which cues consumers prioritize.

Promotion can reduce trust because it functions as an external stimulus that may be perceived as inconsistent or manipulative, particularly when consumers have high information literacy and cross-platform comparison habits. This aligns with cue utilization theory, which emphasizes that consumers rely on the credibility and consistency of cues under uncertainty (Kakaria, Simonetti, & Bigne, 2024).

Convenience, although relevant, no longer serves as a differentiating cue. Generation Z consumers perceive seamless online-offline transactions as expected, and therefore convenience does not actively increase trust, supporting the notion of hygiene factors in service evaluation (Liu & Sun, 2023).

Brand familiarity operates as a conditional moderator, primarily influencing experiential cues. While prior theory suggests that familiarity may strengthen reliance on product-related cues, the empirical results do not support a significant moderating effect. This indicates that product evaluations in O2O contexts may remain relatively stable regardless of familiarity, as consumers may perceive product-related information as inherently diagnostic and less dependent on prior knowledge.

In addition, the absence of significant moderation effects for price, promotion, and convenience suggests that these cues are either processed through relatively stable evaluation mechanisms or are less sensitive to differences in familiarity. For instance, price evaluations often involve objective comparisons, while convenience may function as a baseline expectation. Promotion, although influential, may be interpreted with skepticism regardless of familiarity levels, particularly in cross-channel environments.

This finding highlights the robustness of product-related cues in trust formation and suggests that their influence may be less sensitive to individual differences such as brand familiarity.

Collectively, these results demonstrate that trust formation is contingent but selectively bounded: familiarity influences cue reliance only under specific conditions, rather than broadly across all marketing mix elements. This refinement of the SOR framework illustrates the differentiated roles of informational vs. experiential cues in shaping consumer trust.

Theoretical and Practical Implications

Theoretical contribution: This study extends the SOR framework by demonstrating that consumer responses to marketing stimuli are conditionally shaped by prior brand knowledge. Specifically, brand familiarity functions as a selective boundary condition, affecting only certain cue–trust relationships, particularly those involving experiential evaluation such as service interactions. The findings also contribute to cue utilization theory by showing that cognitive shortcuts provided by familiarity do not uniformly alter the effect of all cues, highlighting the differentiated processing of informational versus experiential signals in O2O contexts.

Practical implications: Based on these findings, firms should adopt differentiated trust-building strategies: (1) For low-familiarity consumers, service quality is critical. Firms should ensure responsive support and consistent cross-channel experiences. (2) For high-familiarity consumers, maintaining stable product quality is more important, as accumulated knowledge allows product-related cues to confirm trust. (3) Promotional strategies should prioritize transparency and credibility rather than frequency or aggressiveness, particularly for Generation Z consumers prone to cross-platform verification. (4) Convenience should be treated as a baseline operational expectation, ensuring seamless processes without expecting significant trust gains from incremental improvements.

Recommendations for Future Research

Building on these findings, future research could: (1) Examine whether the identified trust formation mechanisms apply to other demographic groups or cultural contexts. (2) Employ longitudinal designs to capture the dynamic evolution of trust as consumers accumulate O2O experiences. (3) Investigate additional contextual variables, such as perceived risk, platform reputation, or social influence, to further clarify the boundary conditions of trust formation. (4) Explore the impact of emerging technologies—including AI personalization, immersive retail, and social commerce—on trust formation across online and offline channels.

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