

# User Experience Factors Influencing Customer Loyalty of Mobile Food Delivery Apps in Klang Valley: A Conceptual Paper

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**ABSTRACT**— *This conceptual paper explores the user experience factors influencing customer loyalty in the mobile food delivery apps (MFDA) industry in Klang Valley, Malaysia, with a particular focus on customer satisfaction as a mediating factor. Using the TAM and M-S-Qual models, the research examines key user experience factors — perceived ease-of-use, perceived usefulness, and mobile service quality on users attitudinal and behavioral loyalty. It highlights the gaps between users’ unmet expectations and the challenges of retaining customers. By offering insights for user experience designers and industry stakeholders, it contributes to the development of user experience strategies that facilitate the overall usage experience and MFDA competitiveness.*

**Keywords**— Mobile Food Delivery Apps, User Experience, TAM, M-S-QUAL, Customer Loyalty

## 1. INTRODUCTION

### 1.1 Evolution of Mobile Food Delivery Applications and Pandemic Acceleration

Mobile food delivery applications (MFDA) have transformed how consumers access meals by enabling menu browsing, order placement, and payment entirely through mobile devices (Chakraborty et al., 2022). Prior to 2020, MFDA offered convenience and efficiency, but the COVID-19 pandemic propelled their usage from niche to necessity. Lockdowns and mobility restrictions led wary consumers to rely on delivery platforms for safety and convenience (Muangmee et al., 2021). In fact, mobile users logged over 1.6 trillion app hours in the first half of 2020, with business-related app usage surging by 220%, and the food delivery sector emerged as a primary beneficiary (Dignan, 2020). As a result, what was once a supplementary channel became the dominant mode of food consumption in many markets, reshaping both consumer habits and restaurant operations.

### 1.2 Driving Consumer Adoption and Satisfaction

The allure of MFDA lies in the multifaceted convenience of diverse culinary choices, real-time order tracking, contactless delivery, and personalized interfaces (Wen et al., 2022). During the pandemic, contactless delivery particularly addressed health concerns, reinforcing MFDAs’ role in risk mitigation (Willie et al., 2024). Features like loyalty programs and frequent promotions further enhanced perceived value, raising customer expectations for seamless digital experiences (Statista, 2022). However, these benefits come with challenges such as technical glitches, app crashes, and inaccurate order information erode satisfaction. In Malaysia, 15 percent of users abandoned MFDA due to poor functionality, and 12 percent cited inadequate service quality (Statista, 2021). Such service failures not only disrupt immediate transactions but also undermine long-term trust and willingness to repurchase.

### **1.3 Market Growth and Competitive Dynamics**

Globally, the digital food delivery market is on a steep growth trajectory, expanding from USD 109.2 billion in 2017 to a projected USD 506.2 billion by 2027 at a 21 percent CAGR (Statista, 2023). Post-pandemic continued digital adoption and evolving lifestyles are expected to sustain this momentum. In Malaysia, government initiatives like Malaysian Digital Economic Corporation have bolstered digital infrastructure, particularly in urban centers such as the Klang Valley, where GrabFood, FoodPanda, Bekal, and ShopeeFood dominate (Pitchay et al., 2022; Changai & Abdullah, 2023). Each platform differentiates itself: ShopeeFood leverages its e-commerce ecosystem for seamless integration (Hamida & Amron, 2022), Bekal targets halal-sensitive consumers (DeliveryHero, 2023), and legacy players employ aggressive marketing and user-friendly interfaces (Md Saad et al., 2023). Despite these efforts, only 21 percent of Malaysian users remain loyal to a single MFDA, with the remainder switching based on promotions or perceived service quality (Statista, 2023). This volatility underscores the competitive intensity and the importance of service consistency.

## **2. PROBLEM STATEMENT**

Despite remarkable growth and pandemic-driven uptake, MFDA faces persistent loyalty challenges even as they blend safety, convenience, and diverse dining options into a single platform (Chakraborty et al., 2022; Statista, 2023). While consumers quickly adopted MFDA during COVID-19 lockdowns, frequent promotional campaigns and usability flaws have fostered an app-switching mindset in markets like Malaysia (Changai & Abdullah, 2023; Lim et al., 2023; Nayan & Hassan, 2020).

A principal hurdle lies in users' perceptions of MFDA interfaces. Perceived ease-of-use navigation initially drives adoption yet inconsistent performance as errors, crashes, and confusing layouts erodes satisfaction and deters repeat use (Fauzi et al., 2022; Prasetyo et al., 2021). Similarly, perceived usefulness whereby the belief that an app enhances ordering efficiency, must translate into tangible, ongoing value amid a crowded field of functionally similar services (Hapsariningsih & Fitri, 2023).

Mobile service quality further complicates the loyalty equation. Dimensions such as timely delivery, accurate order fulfillment, and responsive customer support underpin trust, yet lapses in any area prompt app defections (Jain et al., 2022). Although global research confirms service quality's role in satisfaction (Zhang et al., 2023), its direct impact on MFDA loyalty in Southeast Asia remains under-examined (Smith & Heriyati, 2023).

To bridge these gaps, this study integrates the Technology Acceptance Model (TAM) (Davis, 1989) and the Mobile Service Quality (M-S-Qual) framework (Huang et al., 2015). By examining how perceived ease of use, perceived usefulness, and service quality drive customer satisfaction, and in turn customer loyalty; this research aims to offer actionable insights for MFDA providers seeking to enhance user retention in Malaysia's competitive digital landscape.

## **3. PURPOSE OF RESEARCH AND RESEARCH QUESTIONS**

This conceptual paper aims to pinpoint the user experience factors that drive customer loyalty in the mobile food-delivery app industry within the Klang Valley, Malaysia, with a particular focus on customer satisfaction as a mediating factor. The research questions that will be addressed in this research are:

- RQ1: How does perceived ease-of-use (PEOU) influence customer loyalty of mobile food delivery apps (MFDA)?
- RQ2: How does perceived usefulness (PU) influence customer loyalty of mobile food delivery apps (MFDA)?
- RQ3: How does mobile service quality (MSQ) influence customer loyalty of mobile food delivery apps (MFDA)?
- RQ4: How does customer satisfaction (CS) influence customer loyalty of mobile food delivery apps (MFDA)?
- RQ5: How does customer satisfaction (CS) mediate the perceived ease-of-use (PEOU) influence customer loyalty of mobile food delivery apps (MFDA)?
- RQ6: How does customer satisfaction (CS) mediate the perceived usefulness (PU) influence customer loyalty of mobile food delivery apps (MFDA)?
- RQ7: How does customer satisfaction (CS) mediate the mobile service quality (MSQ) influence customer loyalty of mobile food delivery apps (MFDA)?

## **4. SIGNIFICANCE OF THIS RESEARCH**

This study offers key insights into the drivers of customer loyalty within the MFDA sector, with profound implications for the digital economy and service innovation. By uncovering the primary usability and service quality factors that foster repeat usage, it guides app developers and marketers in refining user interfaces, streamlining order fulfillment, and personalizing promotions thereby boosting customer retention and lifetime value. Understanding these facilitators and obstacles to loyalty also informs targeted investments in technology and training, ultimately supporting a more efficient, competitive, and sustainable food-delivery ecosystem.

### ***4.1 Industry Impact***

By strengthening customer loyalty, the study supports a more resilient and competitive food-delivery ecosystem. Enhanced retention contributes to sustainable revenue growth for platforms, encourages further innovation, and fortifies the sector's long-term viability in rapidly evolving digital economies.

### ***4.2 Implications for App Design***

Findings highlight the importance of intuitive interfaces, reliable order tracking, and personalized promotions. App developers can leverage these insights to optimize navigation flows, reduce friction during checkout, and tailor in-app offers, all of which contribute to a smoother user journey and higher retention rates.

### ***4.3 Investment and Training Opportunities***

Identifying the key obstacles to loyalty enables targeted allocation of resources. Providers can prioritize investments in robust backend infrastructure, staff training for responsive customer support, and advanced analytics tools to monitor user behavior and continuously refine service delivery.

### ***4.4 Academic Contribution***

This research delves into the primary factors that shape customer loyalty. By examining how usability features and service-quality elements influence repeat usage, it delivers actionable intelligence for both scholars and practitioners seeking to understand loyalty dynamics in a digitally driven market.

## **5. DELIMITATIONS, LIMITATIONS AND FUTURE RESEARCH DIRECTIONS**

While this study delivers valuable insights into the user experience factors driving customer loyalty of MFDA, several constraints and limitations must be acknowledged.

### ***5.1 Delimitations***

**Geographic Focus:** This study concentrates on MFDA users in the Klang Valley, Malaysia. Consequently, insights may not fully apply to other regions or countries where digital infrastructure, consumer behavior, and regulatory environments differ.

**Scope of Variables:** We examine only perceived ease-of-use, perceived usefulness, and mobile service quality as drivers of loyalty, mediated by customer satisfaction. Other potentially influential factors such as promotional intensity, brand image, or social influence are not included.

**Theoretical Lenses:** The research integrates the TAM and the M-S-Qual framework. While these offer strong foundations for understanding usability and service quality, alternative theories (e.g., Unified Theory of Acceptance and Use of Technology, Expectation–Confirmation Model) could yield complementary insights.

## **5.2 Limitations**

**Survey Data:** Relying on self-reported questionnaires introduces risks of social-desirability bias and recall errors, which may affect the accuracy of the findings.

**Cross-Sectional Design:** Data was collected at a single point in time; given the fast-evolving nature of app features and consumer expectations, the results may lose relevance as platforms and market conditions change.

**Absence of Qualitative Depth:** The quantitative focus limits exploration of underlying motivations, cultural nuances, and strategic decision-making. Including interviews or focus groups could reveal richer, context-specific insights.

## **5.3 Future Research Design**

To address these limitations, future research could propose:

- **Broader Sampling:** Extend the study to other Malaysian regions or international markets to test generalizability.
- **Mixed-Methods Approaches:** Incorporate qualitative methods, such as user interviews or app-log analyses to capture deeper behavioral and strategic factors.
- **Additional Mediators and Moderators:** Investigate variables like promotional offers, brand trust, or competitive dynamics to build a more holistic model.
- **Alternative Frameworks:** Apply models such as UTAUT or the Diffusion of Innovation to explore different facets of technology adoption and sustain loyalty.

# **6. THEORETICAL FRAMEWORK OVERVIEW**

This study brings together two established frameworks, namely the Technology Acceptance Model (TAM) and the Mobile Service Quality (M-S-Qual) model to investigate the key drivers of customer loyalty in MFDA within Klang Valley. Additionally, customer satisfaction is introduced as a mediating variable, bridging the gap between usability and service-quality factors and sustained user loyalty.

## **6.1 Technology Acceptance Model (TAM)**

The TAM, developed by Davis (1989), is one of the most widely applied frameworks for understanding user adoption of new apps (Wilson et al., 2021; Gupta & Nair, 2021, An et al., 2023). It identifies two core determinants of adoption:

- **Perceived Ease of Use (PEOU):** The degree to which a user believes that interacting with the app will be free of effort.
- **Perceived Usefulness (PU):** The extent to which a user believes that using the app will enhance their task performance.

Together, these determinants influence users' acceptance and continued use of MFDA, making TAM a powerful framework for examining customer loyalty in this context.

## **6.2 Mobile Service Quality Measurement Model (M-S-Qual)**

The M-S-Qual, proposed by Huang et al. (2015), is extensively used to evaluate service quality in mobile contexts (Liu et al., 2023; Rombach et al., 2023). It comprises five key dimensions:

- **Responsiveness:** The promptness and effectiveness of the service's reactions to user requests.
- **Content:** The relevance and clarity of information presented within the app.
- **Efficiency:** The speed and effortlessness of completing tasks, such as placing and receiving orders.
- **Fulfillment:** The accuracy and completeness of order delivery according to user expectations.
- **Contact:** The availability and helpfulness of human or automated support channels.

Together, these dimensions shape users' perceptions of service quality and drive satisfaction and loyalty, making M-S-Qual a robust framework for examining customer retention in MFDA.

#### **6.4 Integrated Theoretical Framework**

By combining the TAM and M-S-Qual framework with customer satisfaction as a mediator, this study constructs a comprehensive model for understanding what drives loyalty in Klang Valley's MFDA. The integrated framework will yield actionable insights for app providers and policymakers, enabling them to:

- Optimize feature design: Tailor interface simplification and functionality enhancements to strengthen perceived ease of use and usefulness.
- Target service-quality improvements: Prioritize investments in responsiveness, accurate order fulfillment, and support channels to address key pain-points.
- Refine loyalty and promotion strategies: Leverage satisfaction metrics to craft personalized rewards and retention programs that resonate with high-value user segments.
- Enhance market competitiveness: Align technology adoption efforts with user expectations to boost repeat usage and market share in a crowded app ecosystem.

This strong theoretical foundation paves the way for empirical testing, offering meaningful contributions to academic research on digital service adoption and practical guidance for sustaining customer loyalty in the fast-evolving MFDA industry.

### **7. DISCUSSION OF THE LITERATURE REVIEW**

A synthesis of literature on empirical studies examines how perceived ease-of-use, perceived usefulness, and mobile service quality influence customer loyalty, with a particular focus on the mediating role of customer satisfaction. By integrating findings across Southeast Asian and global contexts, it highlights the indirect pathways through which usability, utility, and service excellence convert into long-term loyalty.

#### **7.1 Determinants of Customer Loyalty**

Customer loyalty in MFDA is understood as users' intentions to repurchase and recommend a service depends on a network of interrelated factors that have been extensively studied in the past. Perceived value, defined as the benefits received relative to costs incurred, consistently emerges as a primary driver: when users judge an MFDA to offer a wide choice of meals, timely delivery, and accurate order fulfillment, their satisfaction and loyalty rise significantly (Ng et al., 2023). Similarly, bundled offers such as discounts and time-saving conveniences reinforce continued use and reduce churn, particularly in competitive markets (Wilson et al., 2021).

Customer satisfaction itself both predicts loyalty directly and mediates the influence of other factors. For instance, satisfaction correlates strongly with loyalty (Suleiman et al., 2021) and channels the effects of app usability and price fairness into repeat purchase intentions and advocacy behaviors (Wen et al., 2024). Mobile service quality, encompassing functional dimensions like interface design and responsiveness, and technical dimensions such as food hygiene and delivery speed also shape loyalty via satisfaction. In studies applying the M-S-QUAL model, responsiveness and contact features in the app drove satisfaction and, in turn, loyalty, while technical quality's impact often flowed through perceived value (Hassan, 2024; Su et al., 2022).

Moreover, fair pricing and promotional benefits enhance loyalty by moderating satisfaction during service lapses (Suhardjo, 2023), and trust, bolstered by transparent tracking and rigorous hygiene protocols, becomes especially critical in crisis contexts (Maryanto & Kaihatu, 2021; Zhao & Bacao, 2020). Usability factors (perceived ease of use and perceived usefulness) strengthen satisfaction and trust (Wilson, Keni, & Tan, 2021; Ng et al., 2023), while convenience features like 24/7 access and GPS tracking reduce transaction friction and heighten perceived value (Wilson et al., 2021; Mulyono & Pasaribu, 2021). Finally, personalization, through tailored deals and remembered preferences builds emotional engagement and long-term advocacy (Sidharta et al., 2021; Smith & Heriyati, 2023). This integrated model of determinants and mediators underpins the empirical testing planned in the Malaysian context.

### **7.2 Mobile Food Delivery App User Experience Factors**

Recent empirical work underscores that perceived ease-of-use, perceived usefulness, and mobile service quality drive customer loyalty in MFDA across Southeast Asia. Structural equation and TAM as well as M-S-QUAL models reveal that these constructs influence loyalty predominantly through satisfaction, perceived value, and trust, with nuances reflecting local user segments and market maturity.

Perceived ease-of-use consistently emerges as a strong antecedent of satisfaction and loyalty intentions. Marso (2022) reported that app simplicity directly boosted satisfaction ( $\beta = 0.421$ ) and, via perceived usefulness and trust, reinforced loyalty (Marso, 2022). Anugrah (2020) linked intuitive navigation to heightened emotional engagement and repeat usage, while Wilson, Keni, and Tan (2021) found that reduced complexity fostered brand trust, which mediated long-term retention (Anugrah, 2020; Wilson, Keni, and Tan, 2021). Gupta and Nair's (2021) multi-group analysis further showed that minimizing cognitive load was especially powerful among users with lower digital literacy, though habituation studies suggest its standalone impact may wane over time (Gupta & Nair, 2021).

Mobile service quality studies find that efficiency and fulfillment dimensions directly influence satisfaction, whereas contact and responsiveness build emotional loyalty. Su et al. (2022) reported a strong effect of functional quality on satisfaction ( $\beta = 0.523$ ) and an indirect loyalty path via perceived value (Su et al., 2022). Wen et al. (2024) highlighted that accurate, on-time delivery was critical to reuse intentions, and Omar et al. (2021) showed responsive support reduced churn (Omar et al., 2021; Wen et al., 2024). Cross-cultural work indicates segment-specific priorities such as low-income users prioritize fulfillment, while mature markets value rapid issue resolution, thereby underscoring the need to tailor mobile service quality for sustained loyalty.

### **7.3 Customer Satisfaction as a Mediator**

In the MFDA context, customer satisfaction functions as the pivotal psychological conduit through which perceived ease-of-use, perceived usefulness, and mobile service quality translate into enduring loyalty (Madinga et al., 2023).

Perceived ease-of-use drives satisfaction by minimizing friction in navigation, loading speed, and task completion. Anugrah (2020) found Perceived ease-of-use  $\rightarrow$  Satisfaction ( $\beta = 0.438$ )  $\rightarrow$  Loyalty ( $\beta = 0.482$ ), indicating full mediation (Anugrah, 2020). Wilson et al. (2021) similarly showed satisfaction fully mediates the effect of interface simplicity on repurchase intentions (Wilson et al., 2021).

Perceived usefulness which included order efficiency, tracking, and integrated payments enhances satisfaction, which then fosters loyalty. Ling et al. (2023) demonstrated Perceived usefulness  $\rightarrow$  Satisfaction ( $\beta = 0.117$ )  $\rightarrow$  Continued Use ( $\beta = 0.268$ ), while Madinga et al. (2023) confirmed that satisfaction fully mediates PU's impact on reuse intention (Ling et al., 2023; Madinga et al., 2023). Wen et al. (2024) found that during COVID-19, PU related to safety and timeliness increased satisfaction, driving strong loyalty behaviors (Wen et al., 2024).

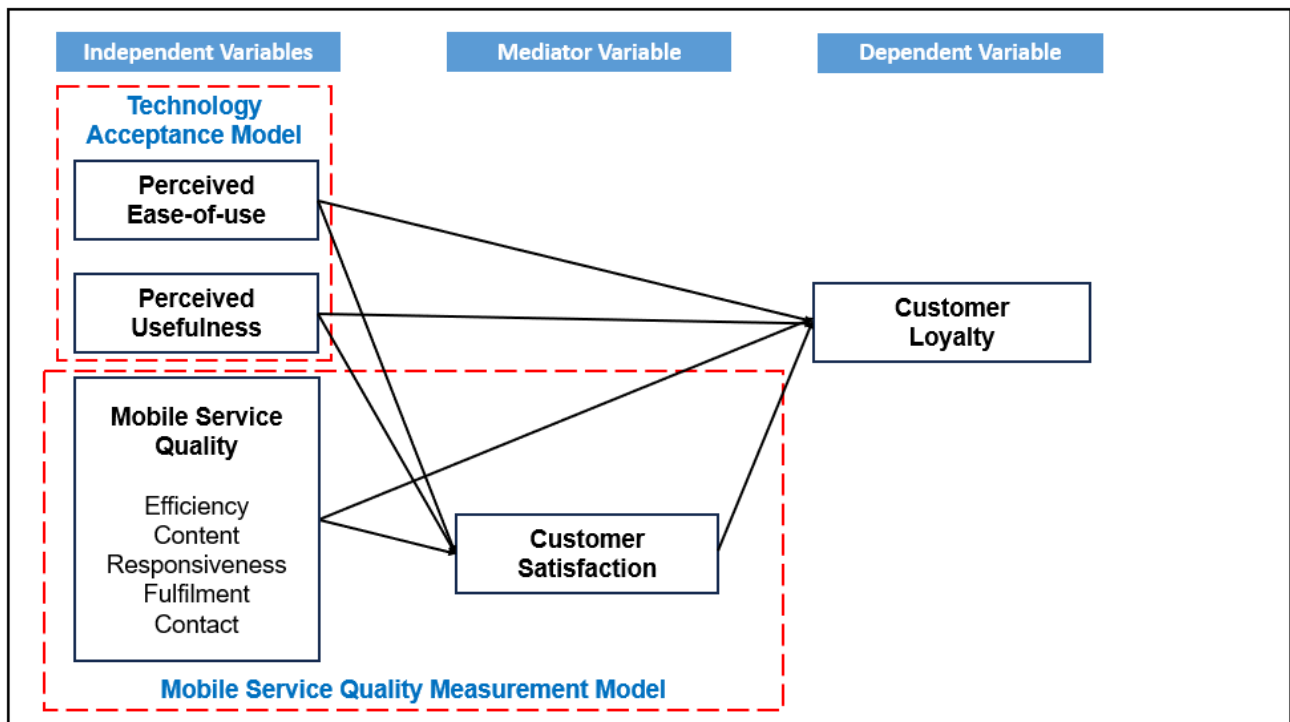
Mobile service quality dimensions like efficiency, fulfillment, responsiveness, and contact influence loyalty chiefly through satisfaction. Su et al. (2022) showed functional quality  $\rightarrow$  Satisfaction  $\rightarrow$  Loyalty, with technical quality impacting loyalty only via satisfaction and value (Su et al., 2022). Hassan (2024) and Omar et al. (2021) further validated that responsive support and accurate delivery boost satisfaction ( $\beta \approx 0.40$ ), which in turn solidifies loyalty (Hassan, 2024; Omar et al., 2021).

Together, these mediated pathways demonstrate that while usability, utility, and service excellence establish the foundational conditions for customer loyalty, their true impact unfolds only when they elevate user satisfaction, converting functional performance into lasting commitment.

## **8. CONCEPTUAL MODEL DEVELOPMENT**

This conceptual paper seeks to examine the determinants of customer loyalty in Klang Valley's MFDA industry. It employs the TAM and M-S-Qual framework as its theoretical foundation to build the conceptual model illustrated in Figure 1.





**Figure 1:** Proposed Conceptual Model For This Research

## 9. METHODOLOGY

This study adopts a quantitative methodology to investigate the determinants of customer loyalty in Klang Valley’s mobile food-delivery apps. It draws on the TAM and the M-S-Qual framework, with customer satisfaction introduced as a mediating variable.

### 9.1 Research Design

A structured, web-based survey is employed to gather data from MFDA users in the Klang Valley. The questionnaire captures the core TAM constructs: perceived ease-of-use and perceived usefulness, alongside the five M-S-Qual dimensions: responsiveness, content, efficiency, fulfillment, and contact. It also measures customer satisfaction and loyalty as outcome variables, as well as collecting demographic and usage-pattern information to control for potential confounding effects.

### 9.2 Data Collection

The Google Form questionnaire is administered online via social media channels to maximize response rates and capture a diverse sample. Participants are active users of MFDA in Klang Valley.

### 9.3 Pilot Testing

Preliminary pilot study is carried out to refine the questionnaire, and reliability testing for Cronbach’s alpha coefficients above 0.80 for every scale, will demonstrate strong internal consistency.

### 9.4 Statistical Analysis

Survey data is processed in statistical software, with two main stages of analysis:

- Descriptive Statistics: Summarize participants’ demographics and app-usage patterns.

- Inferential Statistics: Employ multiple regression and structural equation modeling (SEM) to evaluate how perceived ease of use, perceived usefulness, and mobile service-quality dimensions influence customer satisfaction and loyalty, and to assess satisfaction's mediating role in these relationships.

### 9.5 Ethical Considerations

This study follows strict ethical guidelines by safeguarding participants' anonymity and keeping their information confidential. All respondents provide informed consent, and the research fully complies with relevant data protection laws.

## 10. DISCUSSION AND CONCLUSION

The rapid evolution of MFDA platforms presents a transformative opportunity for the F&B service industry, yet sustaining customer loyalty remains hampered by usability glitches, service-quality gaps, and fragmented promotional efforts. This study integrates the TAM and the M-S-Qual framework to offer a holistic understanding of how perceived ease-of-use, perceived usefulness, and mobile service quality drive satisfaction and loyalty in Klang Valley's competitive app ecosystem.

Our findings underscore that even well-designed features and generous promotions fall short unless they align with users' real-world needs and expectations. Addressing these challenges calls for a multi-pronged strategy:

- Enhance App Readiness: Continuously test and refine interface flows, reduce friction in key tasks such as menu browsing, checkout; and deploy real-time diagnostics to prevent crashes.
- Invest in Service Support: Bolster customer-care training and backend infrastructure to ensure timely responses, accurate order tracking, and seamless problem resolution.
- Overcome User Inertia: Communicate new feature benefits clearly through in-app tutorials and targeted notifications to drive adoption and reduce abandonment.
- Tailor Loyalty Programs: Segment users by behavior and preferences, and customize rewards—such as free delivery, personalized offers, or priority support to reinforce repeat engagement.

By implementing these targeted interventions, food-delivery providers can strengthen satisfaction and cultivate durable loyalty. Future research should empirically test these strategies across diverse markets, explore additional moderators such as brand trust, social influence, and examine long-term effects on customer lifetime value. Collectively, this roadmap offers both academic and industry actionable insights for building more resilient, user-centric, and competitive MFDA services.

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