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Article

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Determinants of continuance usage intentions: the mediating role of satisfaction and trust in branded mobile applications among Malaysians

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ABSTRACT

This research aims to examine the determinants of continuance usage intentions influence comprises customer engagement, electronic word-of-mouth (e-WOM), technology self-efficacy, personalization, user interface, and reward system on the continuance usage intention of branded mobile applications among Malaysians, with a focus on the mediating roles of customer satisfaction and trust. Employing a quantitative research design, the study gathered data from 430 respondents via an online survey. The data analysis was conducted using Smart Partial Least Squares (Smart PLS) to evaluate the impact of the independent variables on continuance usage intention, alongside the mediating effects of customer satisfaction and trust. The results revealed that all independent variables, except for the reward system, significantly influence continuance usage intention. Moreover, while customer satisfaction was found to mediate the relationship between all independent variables and continuance usage intention positively, customer trust did not mediate the effect of customer engagement and personalization on continuance usage intention. This study contributes to the limited literature on the continuance usage of branded mobile applications, particularly in the context of developing economies. It highlights the importance of customer engagement, e-WOM content, technology self-efficacy, personalization, and user interface in fostering continuance usage intention. Additionally, it underscores the differential mediating roles of customer satisfaction and trust, providing valuable insights for researchers and practitioners aiming to enhance the continuance usage of branded mobile applications.

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Introduction

Customer retention in branded mobile applications remains a significant challenge for many companies. Despite high initial download rates, many users abandon these applications shortly after installation. This issue is especially pronounced in Malaysia, where the average uninstallation rate for mobile applications stands at 41%, indicating a high level of user dissatisfaction and a need for higher-value mobile applications (Cabico, 2021).

The research problem addressed in this study is to identify and understand the factors that influence Malaysians' intentions to continue using branded mobile applications. Understanding these factors is crucial for businesses aiming to enhance customer retention, ensure long-term usage, and maintain a competitive edge in the digital marketplace.

Branded mobile applications have emerged as a crucial tool for organizations to engage with their clients and enhance their brand image (T. P. Tran et al., 2021). The success of a branded mobile application hinges not only on its initial acceptance but also on the long-term usage by users. According to

MoEngage Report (2023), the global uninstallation rate of mobile applications is on the rise, with average uninstallation rates of 28% for Android applications and 13% for iOS applications. The majority of users uninstall an application within the first 2 weeks of installation, while 51% of e-commerce app users uninstall without even activating the app (MoEngage Report, 2023).

Malaysia presents a unique and significant context for this study due to its high mobile penetration rate. As of the third quarter of 2023, 98.4% of the adult population in Malaysia own smartphones (Statista, 2024). This widespread internet penetration and extensive use of mobile devices suggest that customers possess relatively high levels of technology self-efficacy. Self-efficacy refers to an individual's belief in their ability to perform a task (Bandura, 2010). In this context, self-efficacy pertains to users' ability to utilize mobile applications.

The high smartphone penetration in Malaysia coupled with the rising uninstallation rates makes it crucial to understand the factors that influence continuous usage. Moreover, Malaysia's diverse demographic composition and rapid technological adoption provide a fertile ground for examining the nuances of customer behavior toward branded mobile applications. According to Fan et al. (2020), customers with high levels of technology self-efficacy tend to attribute poor application performance, such as slow loading in branded mobile applications, to unexpected outcomes, ultimately leading to customer dissatisfaction. Hence, comprehending customers' self-efficacy regarding branded mobile applications can help avert disruptions within the applications. Additionally, only a limited number of studies have examined customer satisfaction and trust, particularly in relation to the continued usage of mobile applications (C. Y. Li & Fang, 2019; Rowan, 2020).

Studies investigating mobile application usage and the intention to continue using them have yielded diverse insights. These encompass concerns about customer engagement and its impact on users' intentions (McLean et al., 2020). One study conducted by Tan et al. (2022) investigated the factors influencing the sustained usage of branded mobile applications in Malaysia during the COVID-19 pandemic. The study revealed that performance expectancy, social influence, perceived task-technology fit, and hedonic value were significant predictors of the continued usage of mobile branded applications (Tan et al., 2022). Furthermore, the influence of electronic word-of-mouth (e-WOM) content is growing as contemporary customers rely on reviews, testimonials, and overall experiences, which they deem more credible than advertising (Srivastava & Sivaramakrishnan, 2021).

Technology self-efficacy is a critical concept in comprehending the intention to continue using mobile applications as consumers' roles encompass various interactions within the platform (Thakur, 2018). Therefore, it is crucial to understand customers' technology self-efficacy after adopting a platform to ensure sustained usage. The focus of this study is to identify the determinants of continuance intention of mobile loyalty applications in Malaysia. The study's context is the usage of mobile loyalty applications of three food and beverage brands. Understanding the factors that influence customers' intention to continue using branded mobile applications in Malaysia is indispensable for businesses aiming to secure the longevity of their brand's digital presence and long-term success. Furthermore, armed with this understanding, businesses can design and develop mobile applications that ultimately foster users' intention to continue using them.

The research questions for this study are as follows:

1. How do customer engagement, electronic word-of-mouth messages, technology self-efficacy, personalization, user interface, and reward system impact the intention to continue using mobile loyalty applications?
2. Does customer satisfaction mediate the relationship between customer engagement, electronic word-of-mouth messages, technology self-efficacy, personalization, user interface, reward system, and the intention to continue using the mobile loyalty application?
3. Does customers' perceived trust mediate the relationship between customer engagement, electronic word-of-mouth messages, technology self-efficacy, personalization, user interface, reward system, and the intention to continue using the mobile loyalty application?
4. What is the relationship between customer satisfaction and the intention to continue using the mobile loyalty application?

5. How does customers' perceived trust impact the intention to continue using the mobile loyalty application?

Literature review and hypothesis development

Branded mobile applications and continuance usage

Lew et al. (2020) argued that development of mobile technology in recent years significantly impacts consumer behavior and business practices. Due to the widespread utilization of mobile applications, businesses have been developing proprietary mobile applications as an innovative approach to advertising. This strategy has been empirically demonstrated to enhance sales and enhance specific aspects of customer behavior, including loyalty, sustained usage, and customer satisfaction (Y. H. Fang, 2017) and increased revenue (K.-L. Hsiao et al., 2019). Kim and Ah Yu (2016) added that branded mobile applications act as important marketing tools and is increasingly becoming a common practice among many corporations. Given the anticipated advantages of proprietary mobile applications, both businesses (Thakur, 2018), and academia place significant importance on customers' sustained usage of the application.

The concept of sustained usage illuminates customer loyalty and the intention to continue using the application following its adoption (Yan et al., 2021). Furthermore, the effectiveness of a proprietary mobile application and a brand's targeted marketing capabilities are influenced by customers' sustained usage (Fauzi & Sheng, 2020). By closely monitoring customer behavior and implementing targeted marketing strategies based on their consistent usage of mobile applications, businesses can effectively measure success. Therefore, the intention for sustained usage should serve as the primary metric for evaluating the success of a proprietary mobile application.

Customer engagement and continuance intention with mediators: customer satisfaction and customer trust

Customer engagement is a variable commonly employed to assess customer behavior, encompassing aspects such as loyalty and usage intention (Brodie et al., 2013). Scholars have delineated customer engagement as a multidimensional construct, encompassing cognitive, emotional, and behavioral dimensions (Hollebeek, 2011). Moreover, customer engagement is shaped by the experiences delivered by a brand, with positive experiences fostering heightened customer engagement (McLean, 2018). Consequently, customer engagement can engender sustained usage of branded mobile applications (McLean, 2018). Numerous studies have discovered a positive association between customer engagement and continued usage (McLean, 2018; Qing & Haiying, 2021; Thakur, 2019).

Customer satisfaction is widely employed in the marketing domain to gauge post-purchase behavior (Bhattacharjee, 2001). It represents a judgment predicated on customer evaluations pertaining to branded mobile applications (Thakur, 2018). Past usage experiences can shape customer satisfaction and subsequent continued usage. Customer satisfaction assumes paramount importance in fostering loyalty and incentivizing sustained usage of branded mobile applications (L. T. T. Tran et al., 2019). Hung et al. (2012) found in their study on the usage of mobile shopping, customer satisfaction plays an imperative role in repeat purchase intention. In sum, customer engagement can influence trust, customer satisfaction, and continued usage (Islam & Rahman, 2016). Numerous studies have demonstrated a positive link between customer engagement and customer satisfaction (Calder et al., 2016; Harrigan et al., 2017; Sharma & Singh, 2021). Additionally, providing a positive user experience on branded mobile applications instills customer satisfaction with overall usage (Sharma & Singh, 2021).

Establishing customer trust necessitates substantial effort (Hollebeek, 2011). Trust assumes a pivotal role in conferring credibility to brands in the eyes of customers. In the present study, customer trust is conceptualized as consumers' trust in sharing personal information and their sustained usage of branded mobile applications (Alalwan et al., 2016; Yuan et al., 2019). Given that the utilization of a branded mobile application entails the disclosure of personal information, trust represents a critical factor. Customer trust also

amplifies users' confidence in adhering to branded mobile applications (Singh et al., 2018). Providing trustworthy and accurate information in mobile applications is crucial for winning user acceptance (Azeez & Mohammed, 2022; Meng et al., 2019). Engaged customers are more prone to cultivate trust-based relationships, as customer engagement serves as a predictor of behavioral intention (So et al., 2016). Previous studies have evidenced a positive relationship between customer engagement and trust (J. H. Kim & Lee, 2019; M. W. Li et al., 2020; Rather, 2019). Consequently, it is anticipated that customer engagement will exert a substantial impact on cultivating customer trust and promoting continued usage of branded mobile applications. Basing on these findings, the current study formulates the following hypotheses:

- H1: Customer engagement positively influences customer continuance intention to use branded mobile applications.
- H7: Customer engagement has a positive relationship with customer satisfaction regarding continuance usage intention in branded mobile applications.
- H8: Customer engagement has a positive relationship with customer trust in continuance usage intention in branded mobile applications.

e-WOM and continuance intention with mediators: customer satisfaction and customer trust

E-WOM content, also known as electronic word-of-mouth content, refers to the digital communication through which customers express their opinions, reviews, and recommendations about a particular brand (Thakur, 2019). This type of content holds great significance as it serves as a valuable indicator of customers' experiences with branded mobile applications (Jalilvand & Samiei, 2012). Consequently, e-WOM content plays a crucial role in influencing customers' adoption and usage of new technologies, systems, or services. The perceived strength of e-WOM content directly influences the likelihood of it being followed by other customers (S. W. Lee et al., 2019). Therefore, e-WOM content has a direct and indirect impact on continued usage.

E-WOM content serves as a mechanism for helping consumers make informed choices and enhancing their satisfaction levels (Srivastava & Sivaramakrishnan, 2021). Research conducted on hotel booking websites and mobile application searches has demonstrated the positive impact of e-WOM on customer satisfaction (Srivastava & Sivaramakrishnan, 2021). In a study by Chen et al. (2020) that focused on the effects of user interface and social media on consumers' continued usage of location-based mobile apps, it was found that fitness apps enable users to compare their progress and obtain feedback on their achieved goals. Particularly among experienced users, e-WOM content in bicycle-based workout applications significantly enhances customer satisfaction (Chen et al., 2020). Therefore, it is evident that e-WOM content has a significant influence on customer satisfaction with the usage of products or services (Migin & Falahat, 2016).

The concept of customer trust has been extensively studied in various fields, including marketing and e-commerce (M. K. O. Lee & Turban, 2001). Trust from customers is crucial for online sales (Shin et al., 2013), and it is also a fundamental requirement for e-commerce transactions (Falahat, Lee, et al., 2019; Matute et al., 2016). In fact, e-WOM content plays a role in building trust and fostering engagement with mobile applications (E. Y. Lee et al., 2017; S. W. Lee et al., 2019). Several studies have demonstrated that e-WOM content has the power to influence consumers' attitudes positively. Positive e-WOM content contributes to increased customer trust and promotes the usage of mobile applications. Customers tend to place more trust in e-WOM content compared to advertisements or brand information (Khammash & Griffiths, 2011; Shin et al., 2013). Furthermore, e-WOM content shared on social media platforms also has a significant influence on customer trust (Schijns & Bruggen, 2018). As a result, marketing practitioners should actively encourage existing customers to share their experiences in order to build confidence in mobile applications. It is evident that customers place their trust in e-WOM content (Bulut & Karabulut, 2018). Therefore, the following hypotheses are proposed:

- H2: E-WOM content positively influences customers' continuance intention to use branded mobile applications.
- H9: E-WOM content has a positive relationship with customer satisfaction toward continuance usage intention in branded mobile applications.

H10: E-WOM content has a positive relationship with customer trust toward continuance usage intention in branded mobile applications.

Technology self-efficacy and continuance intention with mediators: customer satisfaction and customer trust

Technology self-efficacy refers to an individual's belief in their ability and competence to successfully use mobile applications (Abdullah et al., 2016). The analysis of mobile app adoption and utilization is of great importance as it enables users to independently carry out tasks (Thakur, 2018). Perceived behavioral control, as described in the Theory of Planned Behavior, is connected to the availability of resources and opportunities. Technology self-efficacy serves as a predictor of mobile app adoption (Thakur, 2018), drawing from personal experiences, observations, and social support to assist individuals in task completion (Esteves et al., 2021). Customers tend to prefer tasks in which they feel competent, thereby enhancing their technological self-efficacy (Esteves et al., 2021) and improving their utilization of mobile apps. Foroughi et al. (2019) discovered that technology self-efficacy increases consumers' usage of mobile apps. Furthermore, technology self-efficacy has an impact on usage intention (Falahat, Kit, et al., 2019), with users exhibiting lower levels of continuous use when their self-efficacy is low (Foroughi et al., 2019).

In addition to technology self-efficacy, the support system provided by mobile applications plays a significant role in shaping customer attitudes and the interactivity of the platform, ultimately leading to overall customer satisfaction (Baek & Yoo, 2018; Yoo et al., 2017). The support system encompasses assistance materials or content that aids customers in adopting and utilizing the platform (Yoo et al., 2017). The positive effects of technology self-efficacy on customer satisfaction are also evident in the context of e-government services (Shuib et al., 2019). The identification of customer satisfaction and continued usage of branded mobile applications rests on the importance of technology self-efficacy as a contributing factor. Shuib et al. (2019) demonstrated that the support provided by mobile applications contributes to customer satisfaction. This finding is further supported by C. H. Wang et al. (2013), who observed a positive effect of technology self-efficacy on student satisfaction with mobile learning applications.

Technological self-efficacy also plays a crucial role in fostering customer trust. As customers' level of technology self-efficacy improves, their trust in managing the platform also grows, as they become more confident in their abilities (Tams et al., 2018). Technology self-efficacy often serves as a key determinant in customers' choices when selecting technological solutions. Chamorro-Koc et al. (2021) emphasized that self-efficacy and trust in health technology can increase adoption and intention to use mobile health applications. The findings indicate a positive relationship between technology self-efficacy and customer trust, which in turn leads to continued usage. Moreover, with increased interaction, improved skills, and knowledge, customers enhance their technology self-efficacy, making it more likely for them to develop a trusting relationship with the mobile application (Alalwan et al., 2016; Kaushik et al., 2020; Venkatesh et al., 2012). Hence, the following hypotheses are proposed:

H3: Technology self-efficacy positively influences customer continuance intention to use branded mobile applications.

H11: Technology self-efficacy has a positive relationship with customer satisfaction toward continuance usage intention in branded mobile applications.

H12: Technology self-efficacy has a positive relationship with customer trust toward continuance usage intention in branded mobile applications.

Personalization and continuance intention with mediators: customer satisfaction and customer trust

Mobile applications have the potential to offer distinctive and customized customer experiences. This includes providing location-specific content and keeping customers informed through push notifications

and cashless payment options (McLean, 2018). The customization provided by mobile applications enables companies to utilize data in order to deliver personalized content, products, and experiences based on customer preferences (C. H. Hsiao et al., 2016). McLean (2018) discovered that customization has a positive impact on customer engagement and enhances their intention to continue using a mobile commerce application. In a study conducted by Y. H. Fang (2019) to explore the determinants of continued usage and brand loyalty among mobile application users, value-in-use (VIU) was used to represent customers' experience, personalization, and relationships. The findings revealed that VIU, formed by personalization, experience, and relationships, plays a significant role in increasing customers' intention to continue using the application and their loyalty toward the brand (Y. H. Fang, 2019). This supports the notion that personalization leads to customer satisfaction and increases their intention to continue using loyalty applications. Several other studies (Cheng et al., 2020; Park, 2014; Rogers et al., 2019) have also suggested that personalization is crucial for the continued usage of mobile news applications and social networking sites.

Personalization, satisfaction, and intention to continue using were identified as research variables that represent the characteristics of e-book applications (Liu et al., 2021). Dunne et al. (2010) used personalization as a measurement variable to investigate why customers engage in social networking sites. The findings demonstrated that personalization enhances customer satisfaction in the use of social networking sites (Dunne et al., 2010). Liu et al. (2021) discovered that personalization directly influences perceived usefulness and playfulness, which in turn leads to customer satisfaction. The study identified satisfaction, personalization, perceived usefulness, and perceived playfulness as significant factors influencing students' intention to continue using e-book applications (Liu et al., 2021). Similarly, Trivedi and Trivedi (2018) found that personalization enhances customer satisfaction in fashion applications in India.

Zanker et al. (2019) stated that the three dimensions of personalization in online services are the user interface, content, and interaction processes. High levels of personalization, in conjunction with the brand's capabilities, enhance customers' perception and trust (Aguirre et al., 2015; Komiak & Benbasat, 2006). A study by Ameen et al. (2021) analyzed how the integration of AI in shopping can result in an improved customer experience. The findings indicated that personalization strongly influences trust, and the results of mediation analysis also support the idea that trust mediates the relationship between personalization and AI-enabled customer experience (Ameen et al., 2021). The findings by Zhang and Curley suggest that perceived personalization significantly enhances customers' trust in the integrity and competence of the recommender agent. The above discussion leads to the formation of the following hypotheses as below:

H4: There is a positive and significant relationship between personalization and continuance intention in the usage of mobile loyalty applications.

H13: Personalization has a positive relationship with customer satisfaction toward continuance usage intention in branded mobile applications.

H14: Personalization has a positive relationship with customer trust toward continuance usage intention in branded mobile applications.

User interface and continuance intention with mediators: customer satisfaction and customer trust

Tarute et al. (2017) provided a definition of the term 'user interface' as it relates to mobile applications, encompassing design solutions, functionality, interaction, and information content quality. V. Cho et al. (2009) described perceived user interface design as the structural design that showcases the features and information support of the platform. Tarute et al. confirmed that design solutions and information content quality have a positive impact on customer engagement, which in turn influences the intention to continue using mobile applications. Kennedy-Eden and Gretzel (2012) agreed that the esthetics of mobile applications affect customer behavior and emphasized the importance of design features such as colors, styles, layouts, and icons in facilitating navigation and improving usage. They also highlighted the significance of timely and relevant information content. Luo and Chea (2018) stated that the user interface

facilitates human-computer interaction, assists customers in achieving desired outcomes, and enhances perceived usefulness after adoption. Additionally, the user interface is believed to promote interactivity and significantly impact customers' utilitarian values. Li found that a visually appealing user interface enhances customers' intention to continue using mobile loyalty applications. Gupta et al. (2020) supported the influence of the user interface on the intention to continue usage, emphasizing the strong impact of perceived user interface quality on perceived usefulness and self-efficacy.

Liu et al. (2021) emphasized the importance of ease of use and an attractive user interface in evaluating customer satisfaction and intention to continue using applications. Findlater and McGrenere (2010) argued that the user interface plays a crucial role in personalization. Karapanos and Liu, Liao, and Pratt highlighted how a well-designed user interface improves the overall customer experience and increases satisfaction. Perceived ease of use or usability has been shown to positively impact intention to continue usage (Y. H. Fang, 2019; Xu et al., 2015).

Customer trust in m-commerce is considered a prerequisite for adoption and intention to continue usage (Sarkar et al., 2020). Kennedy-Eden and Gretzel (2012) suggested that design solutions, such as colors, styles, layouts, and icons, can be problematic in cultivating trust and may contribute to poor usage levels. Y. M. Li and Yeh (2010) found that design esthetics significantly affect mobile trust, emphasizing the importance of personalized, esthetically designed, and user-friendly user interfaces to gain the trust of Taiwanese customers. Gao and Waechter (2017) discovered that system quality, including the user interface environment, positively impacts customers' trust in mobile payment systems. Kaushik et al. (2020) also found that perceived quality strongly influences customer trust. Thus, with the support of past literature, it is hypothesized that:

H5: There is a positive and significant relationship between the user interface and continuance usage intention of mobile loyalty applications.

H15: User interface has a positive relationship with customer satisfaction toward continuance usage intention in branded mobile applications.

H16: User interface has a positive relationship with customer trust toward continuance usage intention in branded mobile applications.

Reward system and continuance intention with mediators: customer satisfaction and customer trust

This study conducted by Tseng and Lee (2018) presents a valuable argument regarding the variable under investigation. The researchers evaluated brand benefits from four perspectives: functional, experiential, symbolic, and monetary. The findings of the study revealed that monetary benefits have a positive impact on the intention to continue using the product/service through parasocial interaction, which refers to the willingness to share personal information. Therefore, the study confirms that brand benefits, particularly the reward system, promote parasocial interaction and ultimately enhance the intention to continue using the product/service. Other studies, such as R. J. H. Wang et al. (2018), have demonstrated that coalition loyalty programs offered through mobile applications can increase the participation of existing customers by providing rewards and convenient information. Additionally, daily deals or offers through mobile shopping applications, which can be considered as part of the reward system, have been found to increase customers' intention to continue using the applications (Tak & Panwar, 2017).

Regarding customer satisfaction as a mediating factor, O'Donohoe and Vedrashko (2011) argue that the reward system is a crucial element that should be included in the successful implementation of mobile loyalty programs. This point is supported by Kristiani et al. (2014), who note that benefits such as monetary savings or personalized services have a positive influence on customer satisfaction with brands. Their findings indicate that economic and social rewards strongly impact customer satisfaction. Other studies have also shown a strong association between monetary incentives, which are part of the reward system, and customers' perceived value or engagement, ultimately leading to improved customer satisfaction (Chopdar & Balakrishnan, 2020; J. Fang et al., 2017).

Trust is conceptualized as a set of beliefs that individuals develop over time based on the attributes of the product or service. The consequences of trust often influence customers' behavioral intentions toward mobile retail applications (Kaushik et al., 2020). According to Choi et al. (2019), one of the most frequently suggested reasons for customers' continued use of applications is customer trust. The study found that perceived financial benefits significantly influence customer satisfaction and trust in relation to continued usage intentions. Similarly, Ahrens et al. (2013) state that the financial incentives offered to customers, both senders and receivers, result in an increase in new sign-ups and the trust placed in receivers. Thus, with support from the literature and discussion, the following hypotheses were developed: H6: There is a positive and significant relationship between the reward system and continuance intention in the usage of mobile applications.

H6: There is a positive and significant relationship between the reward system and continuance usage intention of mobile loyalty applications.

H17: Reward system has a positive relationship with customer trust toward continuance usage intention in branded mobile applications.

H18: Reward system has a positive relationship with customer trust toward continuance usage intention in branded mobile applications.

Customer satisfaction and customer trust

Customer satisfaction is a post-experience evaluation of a brand and its services (Falahat et al., 2018). Positive customer experiences have been found to result in higher levels of satisfaction, trust, repurchase intention, and loyalty (Shobeiri et al., 2018; Thakur, 2019). In today's world, where mobile devices, e-commerce, and loyalty apps are prevalent, it is crucial to measure customer happiness. Increased customer happiness has been found to lead to greater utilization (Masri et al., 2020; Su et al., 2016; Thakur, 2018). Su et al. (2016) suggested that customer happiness and trust should be used to assess continued use in the e-tourism industry. Masri et al. (2020) found that customer happiness was a significant predictor of mobile app adoption. Thakur (2018) discovered that customer happiness also increases the usage of mobile commerce apps. When customers are satisfied with a mobile shopping app, they are more likely to continue using it. Customer satisfaction indices also evaluate future behaviors such as loyalty, positive word of mouth, and continued usage (Marinkovic & Kalinic, 2017). Happy customers typically demonstrate affective and continuation commitments (Raju, 2017). Continuation commitment refers to the intention to remain loyal to a brand and its services (Kalinic et al., 2020; Raju, 2017). In e-commerce and mobile commerce, consumer satisfaction has a positive impact on behavioral intention (Bhattacharjee, 2001; R. J. H. Wang et al., 2018). Previous research has shown a positive correlation between customer satisfaction and repeat use.

Trust in mobile apps for personal data and financial transactions is crucial (Qasim & Abu-Shanab, 2016). Customer trust predicts the adoption of mobile applications (Qasim & Abu-Shanab, 2016). Given uncertainties such as personal information misuse, transaction failures, and privacy threats in the information system environment, consumer trust is a significant predictor (Cao et al., 2018). Therefore, it is essential to increase customer trust in order to promote mobile app adoption. During the 2019 pandemic, trust in food delivery apps increased, leading to a greater intention to use them (M. Cho et al., 2019). This finding is associated with the reliance on global mobile apps during pandemics. When consumers heavily rely on mobile services, safety, reliability, and efficiency become crucial factors in building confidence and intention to use (Zhao & Bacao, 2020). Trust in third-party mobile payment systems also supports the notion that it enhances continued usage (Shao et al., 2019). This further validates the study's assessment of consumers' trust in continued usage. As such, the following hypotheses are developed:

H19: Customer satisfaction positively influences customer continuance intention to use branded mobile applications.

H20: Customer trust positively influences customer continuance intention to use branded mobile applications.

Figure 1 illustrated below, presents the research framework:

Research methodology

Design and sample

This study employed non-probability convenience sampling to collect data. Convenience sampling was selected due to its cost-effectiveness, accessibility, and efficiency in reaching the target population. Non-probability sampling allows for the collection of a substantial amount of data in a relatively short period, which was essential for this study. Non-probability sampling was chosen for several reasons. First, it allowed us to efficiently gather data from a specific population—users of mobile applications of three food and beverage brands (Starbucks, Pizza Hut, and Tealive) in major cities in Malaysia. The selection of Starbucks, Pizza Hut, and Tealive was made to ensure that the study captures a diverse, representative, and relevant sample of branded mobile application users within the food and beverage industry in Malaysia. This approach allows us to draw meaningful insights and provide valuable recommendations for both local and international brands operating in similar contexts.

These cities were selected based on their high internet penetration rates and the presence of the brands' outlets. Second, convenience sampling facilitated the recruitment of respondents who are actual users of the applications, ensuring that the data collected is relevant to the research questions. We have used G*Power to calculate the minimum sample size. Based on these inputs, G*Power calculated the minimum required sample size to be 160, considering an effect size f^2 of 0.15, a significance level (α) of 0.05, a power of analysis ($1-\beta$ error prob) of 0.95, and 8 predictors.

To ensure robustness and account for potential non-responses or incomplete surveys, we aimed to collect a larger sample size. In this study, we collected data from 430 respondents, which exceeds the minimum requirement and enhances the reliability and validity of our results.

Data collection

The final version of the questionnaire was distributed online to users of mobile applications from the selected brands. A total of 430 usable responses were obtained. The strategic selection of respondents from major cities ensured that the sample included users with varied backgrounds and usage patterns, thereby enhancing the robustness of the findings.

The data were collected from major cities in Malaysia that house Starbucks, Pizza Hut, and Tealive outlets. The strategic selection of outlets in these cities is in accordance with the demand from urban customers' hectic lifestyles and the overall Internet penetration in Malaysia (Habib et al., 2011). The two brands were chosen based on the number of outlets in Malaysia and their rankings on both IOS and Google Play. The most important requirement is the integration of reward system as it plays a crucial role in understanding the continuance usage intentions. Table 1 presents a summary of the selection

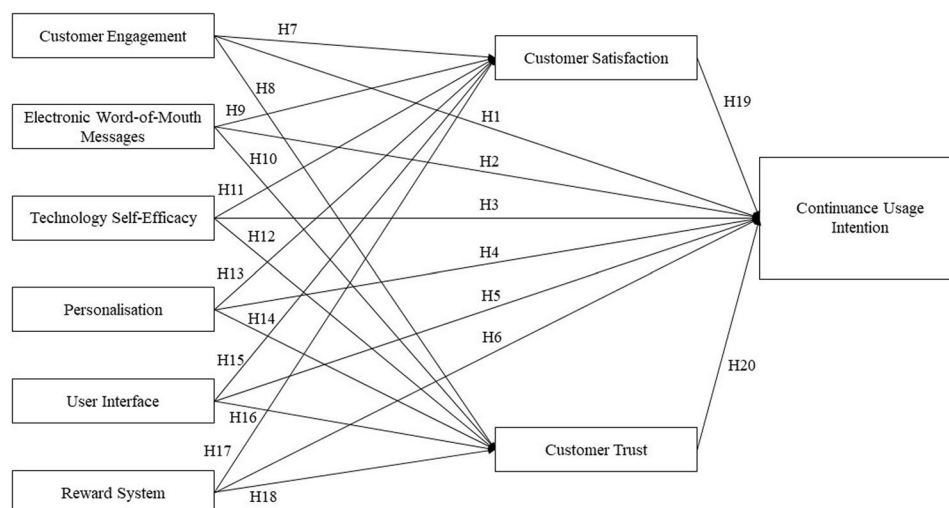


Figure 1. Research framework (here).

criteria for the two branded mobile applications. The online questionnaire was distributed to users of mobile applications and resulted in 430 usable data points from the total data collection.

The questionnaire used in this study was designed to measure the variables of interest: customer engagement, e-WOM content, technology self-efficacy, personalization, user interface, reward system, customer satisfaction, customer trust, and continuance usage intention. The variables were operationalized through existing measurement scales adapted from prior research to ensure content validity. All constructs were assessed using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). According to Tworek et al. (2020), the use of a five-point Likert scale is justified due to its greater reliability compared to a three-point scale and its greater ease of use compared to a seven-point scale.

Table 2 presents the profiles of the respondents, revealing a balanced representation of female (58.6%) and male (41.4%) participants within the age range of 21 to 40 years (78.8%). Furthermore, the study indicated a relatively high frequency of usage for these branded mobile applications, with 44.2% reporting 'often.'

Pretest

To enhance the reliability and validity of the questionnaire, a pretest was conducted with a small sample of respondents who were representative of the target population. The pretest aimed to identify any issues with the questionnaire, such as ambiguous questions, unclear wording, or technical problems. Feedback from the pretest was used to refine the questionnaire, ensuring that it was clear, concise, and easy to understand. This process helped to improve the overall quality of the data collected.

Table 1. Summary of selection criteria.

Items	Starbucks	Pizza hut	Tealive
Number of outlets in Malaysia	320	350	600
Most downloaded application ranking in IOS	9	10	11
Most downloaded application ranking in Google Play	13	8	11
Reward system integration	Yes	Yes	Yes

**The numbers stated are accurate when writing and may be subject to change.*

Table 2. Respondents' profile.

Variables	Frequency	Percentage
<i>Gender</i>		
Male	178	41.4
Female	252	58.6
<i>Age</i>		
21–30	144	33.5
31–40	195	45.3
41–50	63	14.7
51–60	11	2.6
61 & above	17	4.0
<i>Race</i>		
Malay	233	54.2
Chinese	116	27
Indian	71	16.5
Others	10	2.3
<i>Education level</i>		
SPM	49	11.4
STPM	2	0.5
Diploma	52	12.1
Bachelor's degree	271	63
Masters	47	10.9
PhD	9	2.1
<i>Usage frequency</i>		
Rarely	60	14
Sometimes	126	29.3
Often	190	44.2
Always	54	12.6

Ethics declarations

We hereby confirm that our research strictly adheres to ethical guidelines and fully complies with the legal requirements of the country where the study is conducted. This research has received official approval from the Human Research Ethics Committee (HREC) of Open University Malaysia (OUM), with the assigned approval number: OUM-RPMU/1.5.7/338/PHDBA/233/056.

Informed consent

The consent was documented on the initial page of the survey. We incorporated details concerning the consent protocols, elucidated the study's aims, and reassured participants of the confidentiality and anonymity of their answers. Furthermore, we explicitly conveyed in written form that we are constructing a questionnaire to evaluate the usage patterns and experiences with specific branded mobile loyalty applications, with the intention of gathering data of superior quality. We expressed our gratitude for their willingness to partake in the study and requested them to indicate 'Yes' if they concur with the assertions under each section, and 'No' if they dissent. We extend our sincere appreciation in advance for their valuable assistance.

Data analysis

This study employed the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique to test the hypothesized relationships. PLS-SEM is a variance-based SEM technique widely used for predictive modeling and theory development, particularly when the research model is complex, and the sample size is relatively small (Hair et al., 2017). It is suitable for this study because it allows for the simultaneous estimation of multiple interdependent relationships between the constructs, making it possible to assess both direct and indirect effects.

To assess the significance of the path coefficients, we used the bootstrapping procedure, a non-parametric resampling method. Bootstrapping is particularly advantageous as it does not assume a normal distribution of the data, which is often the case in social science research. In this study, we applied bootstrapping with 10,000 resamples to obtain stable estimates and robust standard errors. The decision to use 10,000 resamples in the bootstrapping procedure is based on recommendations from prior research, which suggests that a higher number of resamples provides more accurate and reliable confidence intervals (Hair et al., 2017). Specifically, Hair et al. (2017) recommend using at least 5,000 resamples for bootstrapping in PLS-SEM, but higher resample numbers, such as 10,000, enhance the precision of the parameter estimates. By increasing the number of resamples to 10,000, we aim to ensure the robustness of our findings and mitigate the impact of sampling variability.

Measurement model assessment

The evaluation of the measurement model is an initial step in conducting PLS-SEM analysis. Its objective is to ensure that the constructs exhibit satisfactory indicator reliability, composite reliability, convergent validity, and discriminant validity when applied in the structural path model. Factor loading reflects how well an item represents an underlying construct, with a recommended threshold of 0.50 or higher. Additionally, it is crucial to consider the cumulative loading results and strive for high loading scores that contribute to Average Variance Extracted (AVE) scores exceeding 0.50 (Hair et al., 2017). In accordance with these recommendations, items with factor loadings below 0.50 (CI2) were eliminated due to their failure to meet the minimum threshold. Table 1 displays that all indicators have factor loadings above 0.70, satisfying the requirements for indicator reliability (Hair et al., 2017).

The assessment of internal consistency reliability was also performed using composite reliability and Cronbach's alpha. The results presented in Table 1 demonstrate that the composite reliability and Cronbach's alpha values for all constructs are above 0.70 and below 0.90, which aligns with the recommended criteria (Sarstedt et al., 2022). Subsequently, convergent validity was evaluated based on the

average variance extracted (AVE) values (Sarstedt et al., 2022). AVE should ideally exceed 0.50, as established by Fornell and Larcker (1981). As indicated in Table 3, the AVE values for all constructs surpass 0.50, indicating that the measurement model satisfies the statistical requirements for convergent validity.

The following stage entails the analysis of discriminant validity utilizing the heterotrait-monotrait (HTMT) ratio approach. Discriminant validity serves to illustrate the degree of differentiation between a construct and other constructs (Sarstedt & Cheah, 2019). As displayed in Table 4, the HTMT ratios between the constructs fall below the predetermined threshold of 0.85, and the confidence intervals are below 0.90. Consequently, the findings indicate that discriminant validity has been successfully established for the constructs. Overall, the analysis suggests that the study's reliability and validity have been firmly established, and the measurement model is appropriate for structural analysis.

Structural model evaluation

Assessing the structural path model to evaluate path coefficients is crucial for estimating the relationships among the constructs and their statistical significance (Hair et al., 2017). In this study, we followed the general guidelines provided by Sarstedt et al. (2022) for evaluating the structural model and reporting the results. To test the statistical significance of the path coefficients of the hypothesized relationships, we applied bootstrapping using 10,000 re-samples, which generated t-values and p-values. To evaluate the mediation effects, we used Preacher and Hayes (2008) method, which is suitable for multiple mediator models.

Results discussion

The findings from the assessment of the structural model are presented in Table 5. Hypothesis 1 which posited that customer engagement is positively associated with customers' intention to continue using

Table 3. Factor loading, reliability and AVE.

Construct	Coding	Loading	R	Cronbach's alpha	AVE
Customer Engagement	CE1	0.877	0.939	0.914	0.794
	CE2	0.891			
	CE3	0.892			
	CE4	0.905			
E-WOM Content	EWOM1	0.934	0.956	0.938	0.843
	EWOM2	0.912			
	EWOM3	0.920			
	EWOM4	0.907			
Technology Self-Efficacy	TSE1	0.881	0.933	0.900	0.776
	TSE2	0.892			
	TSE3	0.896			
	TSE4	.854			
Personalisation	PE1	0.937	0.933	0.903	0.778
	PE2	0.906			
	PE3	0.811			
	PE4	0.870			
User Interface	UI1	0.925	0.958	0.940	0.849
	UI2	0.936			
	UI3	0.902			
	UI4	0.924			
Reward System	RS1	0.974	0.978	0.969	0.916
	RS2	0.948			
	RS3	0.968			
	RS4	0.938			
Customer Satisfaction	CSAT1	0.904	0.943	0.919	0.804
	CSAT2	0.909			
	CSAT3	0.879			
	CSAT4	0.896			
Customer Trust	CTR1	0.898	0.951	0.931	0.829
	CTR2	0.938			
	CTR3	0.889			
	CTR4	0.915			
Continuance Usage Intention	CI1	0.880	0.915	0.861	0.782
	CI3	0.919			
	CI4	0.832			

Table 4. Discriminant validity using HTMT.

	Continuance usage intention	Customer engagement	Customer satisfaction	Customer trust	Personalisation	Reward system	Technology self-efficacy	User interface	e-WOM messages
<i>Continuance Usage Intention</i>	0.885								
<i>Customer Engagement</i>	0.675	0.891							
<i>Customer Satisfaction</i>	0.707	0.765	0.897						
<i>Customer Trust</i>	0.701	0.664	0.671	0.910					
<i>Personalisation</i>	0.545	0.550	0.599	0.455	0.882				
<i>Reward System</i>	0.177	0.072	0.148	0.222	0.040	0.957			
<i>Technology Self-Efficacy</i>	0.633	0.735	0.756	0.716	0.559	0.037	0.881		
<i>User Interface</i>	0.752	0.784	0.753	0.688	0.569	0.112	0.741	0.922	
<i>e-WOM Messages</i>	0.700	0.682	0.662	0.777	0.446	0.143	0.653	0.678	0.918

Table 5. Results of direct effect on continuous usage intention.

H	Paths	T-value	P-value	Confidence interval		Findings
				2.5% lower bound	97.5% upper bound	
H1	Customer Engagement → Continuance Usage Intention	0.243	0.808	-0.084	0.113	Not Supported
H2	e-WOM Messages → Continuance Usage Intention	3.805	0.000	0.097	0.304	Supported
H3	Technology Self-Efficacy → Continuance Usage Intention	1.741	0.082	-0.213	0.010	Not Supported
H4	Personalisation → Continuance Usage Intention	3.223	0.001	0.044	0.180	Supported
H5	User Interface → Continuance Usage Intention	6.965	0.000	0.249	0.444	Supported
H6	Reward System → Continuance Usage Intention	1.282	0.200	-0.020	0.101	Not Supported
H19	Customer Satisfaction → Continuance Intention	3.471	0.001	0.080	0.280	Supported
H20	Customer Trust → Continuance Usage Intention	3.701	0.000	0.090	0.294	Supported

mobile applications, is not supported ($\beta=0.012$, $p>0.05$). The findings is not in line with the previous research by McLean (2018), Qing and Haiying (2021), and Thakur (2019). As argued by Dovaliene et al., customer engagement can be adversely affected of the state of mind of users (cognitive customer engagement dimension) where it implies does not influence perceived value.

Hypothesis 2 predicted a positive relationship between e-WOM content and continuance usage ($\beta=0.200$, $p<0.05$), supporting Hypothesis 2. This positive association between e-WOM content and continuance usage supported the theory of planned behavior's key tenet that subjective norms impact behavioral intention.

On the contrary, Hypothesis 3 proposed that technology self-efficacy positively influences customer continuance usage; however, the results indicated otherwise ($\beta = -0.099$, $p>0.05$), suggesting that Hypothesis 3 is not supported. The findings contradicts previous studies (S. C. Kim et al., 2016), where they found self-efficacy was considered one of the factors that directly or indirectly influences users' continuance intentions in the financial service context. The contradiction could be that the self-efficacy measurement has more predictive power when it is measured at a domain specific level (Shiau et al., 2020). In branded mobile applications, such as Starbucks, Pizza Hut, and Tealive, users anticipate more relevant services and have little tolerance for technological issues that disrupt the overall experience.

'The application keeps on logging out,' a Starbucks mobile app user said in a 1-star review (Google Play, 2022). Hypothesis 4 is supported postulating that there is a positive relationship between personalization and continuance usage of branded mobile application ($\beta=0.112$, $p<0.05$). The findings resonate with several other studies (Cheng et al., 2020; Park, 2014; Rogers et al., 2019) which suggested that personalization is crucial for the continued usage of mobile news applications and social networking sites. H5 which is user interface and continuance usage intention of branded apps are positively related as the p -value <0.05 . The result is consistent with previous studies which showcased user interface referring to features, functionality, and information content quality of the mobile application have a significant impact on customers' continuance intention to use the application (V. Cho et al., 2009; Gupta et al., 2020; Tarute et al., 2017).

Regarding Hypothesis 7, it was hypothesized that customer satisfaction mediates the relationship between customer engagement and continuance usage. Table 5 presents the indirect effects and their statistical significance, determined by the bootstrapping procedure (Preacher & Hayes, 2008). The results indicate that customer satisfaction significantly and positively mediates the relationship between customer engagement and continuance usage. The results of this relationship yielded p -values < 0.05 , with Hypothesis 4 ($\beta=0.116$, $p<0.000$). This findings corroborates the current literature by demonstrating that customer engagement activities lead to positive customer satisfaction. An effective customer engagement strategy must be built on a solid understanding of the customer journey, with the outcomes of the strategies being the evaluation of customer satisfaction and the measurement of customers' continuance usage behavior (Godha, 2022). As with H1 and H3, H6 which tested the relationship between reward system and customers' continuance usage of branded apps, found to be not supported ($\beta=0.040$, $p>0.05$). The findings contradict past studies have found a positive and significant relationship between the reward system and customers' continuance intention (Tak & Panwar, 2017; Tseng & Lee, 2018; R. J. H. Wang et al., 2018). Moreover, in this study, when customer satisfaction and perceived trust were used as the mediating variables, the reward system's relationship with continuance intention was supported. H19 tests the customer satisfaction effect on continuance intention. It was found to be supported ($\beta=0.179$, $p<0.000$). This finding is consistent with the findings of Masri et al. (2020), which revealed that customer satisfaction has a positive effect on continuance intention. Through testing H20, there is a positive effect of customer trust on continuance usage intention ($\beta=0.179$, $p<0.000$). Cao et al. (2018) found that perceived trust positively influences continuance intention on the usage of mobile payment services called Alipay in China.

H7 is to test whether customer satisfaction has a significant and positive mediating effect on the relationship between customer engagement and continuance intention. The results of this relationship analysis is supported ($\beta=0.048$, $p<0.05$). The result is consistent with past studies conducted in evaluating the effect of customer engagement on customer satisfaction (Calder et al., 2016; Sharma & Singh, 2021). H8 hypothesized that customer trust mediates the relationship between customer engagement and continuance usage is not supported ($\beta=0.005$, $p>0.000$). Customer trust does not mediate the relationship between customer engagement and continuous usage. The result is inconsistent with previous research, which indicated a positive effect of customer engagement on perceived trust (Hollebeek, 2011; So et al., 2016).

Hypothesis 9 predicts that customer satisfaction mediates the relationship between e-WOM content and customers' continuance usage. The outcomes indicate that customer satisfaction significantly and positively mediates the relationship between e-WOM content and customers' continuance usage ($\beta=0.047$, $p<0.05$). The current study also reviews previous results on the mediating role of customer satisfaction between e-WOM messages and continuance intention (Chen et al., 2020; Srivastava & Sivaramakrishnan, 2021) and found the results to be supporting and reliable. The mediating role of perceived trust on the relationship between e-WOM messages and continuance intention in H10 yields significant results ($\beta=0.089$, $p<0.05$) which concur with past studies (Bulut & Karabulut, 2018; Matute et al., 2016; Schijns & Bruggen, 2018).

H11 hypothesize that customer satisfaction mediates the relationship between technology self-efficacy and customers' continuance usage. The results found to be significant ($\beta=0.111$, $p<0.000$). The result shows that customers with technology self-efficacy alone will not influence continuance intention (refer to H3) to use the platform, but their satisfactory experience makes a difference. The findings contributed

to the body of knowledge in the literature that relates specifically to the H11 relationship (Chao, 2019; Shuib et al., 2019; C. H. Wang et al., 2013; Yoo et al., 2017). According to H12, customer trust mediates the relationship between technology self-efficacy and customer continuance usage ($\beta=0.080$, $p<0.05$).

The mediating role of customer satisfaction on the relationship between personalization and continuance intention on the usage of the mobile loyalty application test through H13 is found to be supported ($\beta=0.027$, $p<0.05$). This positive result means customer satisfaction improved among customers who perceive the mobile loyalty applications to have a high degree of personalization. Devanesan (2022) added that to provide a personalized experience, brands need to employ machine learning algorithms and other technological solutions to manage customer data efficiently. The results of H14 in this study indicate that the mediating role of perceived trust on the relationship between personalization and continuance intention on the usage of the mobile loyalty application is not supported. The uncommon result of this study provides a new perspective on the relationship between personalization, perceived trust, and continuance intention. A survey conducted by the McKinsey research company identified that 71 per cent of customers expect personalization, and 76 per cent of customers get frustrated when they do not get it. The research was conducted primarily for consumers in the United States of America. In Malaysia, on the other hand, customers are more skeptical than ever about being misled by online misinformation and data privacy.

H15 in this study supported the mediating role of customer satisfaction on the relationship between the user interface and continuance intention ($\beta=0.031$, $p<0.05$). The navigation control and satisfaction were strongly correlated with the perceived ease of use under the theory of TAM and customers' attitudes toward the mobile loyalty application. In the current study, the user interface is the representation of perceived ease of use and customer satisfaction is the attitude toward using the application. The findings of this study showed that H16 which is on the mediating role of perceived trust on the relationship between the user interface and continuance intention is supported. It is attributed to customers' expectations of the performance of the three branded mobile loyalty applications. H17 is supported by representing the indirect effect of the reward system on continuance intention with the support of customer satisfaction as the mediating factor ($\beta=0.022$, $p<0.05$). H18 is supported, indicating the importance of perceived trust in improving customers' continuance intention ($\beta=0.025$, $p<0.05$). The summary of hypotheses testing for direct relationship and mediation are presented in Tables 5 and 6.

Implications and beneficiary

Theoretical implications

The present study attempts to address multiple gaps and, in doing so, makes significant theoretical contributions. Firstly, the study extends the limited research on understanding both internal and external determinants of customers' continuance intention on using a technology platform. The internal determinants are customer engagement, electronic word-of-mouth messages, and technology self-efficacy. It represents the variables from the Theory of Planned Behavior (TPB) model. At the same time, the external determinants are personalization, user interface, and reward system. The external determinants represent the Technology Acceptance Model (TAM). There are limited previous studies to the best of the researcher's knowledge and through peer-reviewed searches in databases that empirically explored the effects of the combination of these determinants on continuance intention. Previous studies have mainly approached customers' continuance intention through one theory concept between the Technology Acceptance Model and the Theory of Planned Behavior. This study attempts to enrich the understanding of the area beyond the Technology Acceptance Model and the Theory of Planned Behavior perspectives. This study relied on the integration of the Theory of Planned Behavior and the Technology Acceptance Model in explaining the role of customer engagement, electronic word-of-mouth messages, technology self-efficacy, personalization, user interface, and reward system on continuance intention. It is in support of the mediating variables of customer satisfaction and perceived trust. In doing so, this study takes a value-centric standing and addresses the untested integrated relationships along with customer satisfaction, perceived trust, and continuance intention. The value-centric approach leads the study to leverage a robust set of beliefs and values that translate why customers do the things they do. This study has communicated and supported the facts and figures that appeal to customers' ethics and values.

Table 6. Results of mediating effects.

H	Relationship	Indirect effects			Confidence interval (BC)		Decision
		Std Beta	T-value	P-value	LL 2.5%	UL 97.5%	
H7	Customer Engagement → Customer Satisfaction → Continuance Usage Intention	0.048	2.620	0.009	0.019	0.094	Supported
H8	Customer Engagement → Customer Trust → Continuance Usage Intention	0.005	0.483	0.629	−0.011	0.028	Not Supported
H9	Electronic Word of Messages → Customer Satisfaction → Continuance Usage Intention	0.019	2.166	0.030	0.006	0.041	Supported
H10	Electronic Word of Messages → Customer Trust → Continuance Usage Intention	0.089	3.561	0.000	0.042	0.141	Supported
H11	Technology Self-Efficacy → Customer Satisfaction → Continuance Usage Intention	0.050	3.106	0.002	0.027	0.101	Supported
H12	Technology Self-Efficacy → Customer Trust → Continuance Usage Intention	0.059	3.147	0.002	0.022	0.086	Supported
H13	Personalisation → Customer Satisfaction → Continuance Usage Intention	0.027	2.775	0.006	0.012	0.052	Supported
H14	Personalisation → Customer Trust → Continuance Usage Intention	−0.002	0.287	0.774	−0.016	0.011	Not Supported
H15	User Interface → Customer Satisfaction → Continuance Usage Intention	0.031	2.656	0.008	0.013	0.062	Supported
H16	User Interface → Customer Trust → Continuance Usage Intention	0.022	2.058	0.040	0.006	0.050	Supported
H17	Reward System → Customer Satisfaction → Continuance Usage Intention	0.014	1.975	0.048	0.004	0.032	Supported
H18	Reward System → Customer Trust → Continuance Usage Intention	0.025	2.651	0.008	0.010	0.047	Supported

Social implications

The social implications of this study are significant, as it highlights the importance of understanding and enhancing customer engagement, e-WOM messages, technology self-efficacy, personalization, user interface, reward system, customer satisfaction, and trust in the continuance usage intention of the mobile loyalty applications. By improving these factors, businesses can foster stronger relationships with their customers, leading to increased brand loyalty and advocacy. This, in turn, can create a more interactive and supportive community of users who share positive experiences and recommendations through electronic word-of-mouth (e-WOM). Furthermore, addressing technology self-efficacy and personalization concerns can ensure that mobile applications are inclusive and accessible, promoting digital literacy and

reducing barriers to technology adoption. Overall, these improvements can enhance the social experience of using branded mobile applications, making them more enjoyable and beneficial for a diverse range of users.

Practical implications

The practical implications for enhancing continuance usage intention of mobile loyalty applications are multifaceted. Firstly, customer engagement's impact on usage intention is significantly mediated by customer satisfaction, necessitating a focus on delivering positive overall customer experiences to build brand loyalty. Effective use of data analytics can improve customer engagement strategies and satisfaction. Secondly, the incorporation of electronic word-of-mouth (e-WOM) messages within the application validates users' decisions and promotes continued use through positive reviews and recommendations. Thirdly, addressing customer technology self-efficacy is crucial, as digital knowledge alone does not ensure continued usage. Providing quality information, user-friendly interfaces, and tutorial videos can aid in this. Additionally, personalization strategies must balance customer acceptability with data privacy, enhancing trust and satisfaction. Lastly, a well-designed user interface that is intuitive and efficient is vital, complemented by a customer-oriented reward system that is transparent and easy to use. Incorporating gamification elements can further engage users, ensuring continued usage of the mobile loyalty application.

Beneficiary

This research will firstly contribute to the body of knowledge in the literature related to the area of marketing and customer behavior in terms of the understanding customers' continuance usage intention of branded mobile applications. Academic researchers in the areas of consumer behavior, digital marketing and technology adoption can use this research as a reference for further studies or to validate their theories. Secondly, practitioners such as marketers, digital strategist, mobile app developers as they can use the findings to develop more effective engagement strategies, personalized marketing campaigns. Besides, mobile app developers can gain insights into user preferences and behaviors, enabling them to design more intuitive and user-friendly interfaces that cater to the needs of the food & beverage industry.

Conclusion

The use of branded mobile apps is considered an innovative marketing strategy for businesses. Gaining a comprehensive understanding of customer usage perspectives is essential for implementing mobile applications to ensure long-term business sustainability. Previous academic research has primarily focused on pre-purchase behavior, specifically purchase intention, without giving sufficient emphasis to continuance usage (Yean Sien & Falahat, 2015). Understanding continuance usage, particularly for mobile apps, provides businesses with the opportunity to remain relevant, retain customers, and enhance customer loyalty.

This study examines continuance usage through the lens of customer engagement, e-WOM content, and technology self-efficacy, which in turn mediate customer satisfaction and trust. All the variables investigated are critical for business sustainability. Consequently, the conceptual framework can serve as a valuable guide for business practitioners. The decision to implement mobile applications should not be solely based on trends but should instead be grounded in empirical evidence about the future of mobile applications.

The findings of this study offer compelling evidence that customer engagement, e-WOM, customer satisfaction, and trust are crucial elements for ensuring the continuance usage of mobile applications. However, technology self-efficacy alone, although dependent on customers' level of technological proficiency, is insufficient for sustaining the usage of mobile applications. Trust, satisfaction with the brand, and satisfaction with the mobile application itself are essential benchmarks for promoting continuance usage among customers.

Meanwhile, variables such as customer engagement, technology self-efficacy, and reward systems can only be relevant when supported by the mediating variables. Customer engagement in mobile

applications necessitates meeting customer satisfaction levels to enhance overall usage intention. Technology self-efficacy, although dependent on customers' technological proficiency, is not enough to ensure the continuance usage of mobile applications. Customer trust in the brand and the mobile application plays a critical role in sustaining customers' usage intention. Integrating a reward system into the mobile application has the potential to build customer trust and satisfaction. Satisfied customers tend to value the brand's reward system, and importantly, the trust factor significantly influences the intention to continue using the application. All the variables examined in this study are fundamental to business sustainability. Therefore, the research framework can provide valuable guidance for business practitioners. When implementing mobile applications, businesses should rely not only on trends but also on empirical evidence regarding the future of mobile applications.

Limitations

There are some limitations observed in this study, although several noteworthy findings contributed to the practitioner, literature, and research method. Firstly, a single country sample was used for this study, and incorporating multi-country settings might be helpful in comparing country-specific requirements and preferences. Secondly, current research focused on specific brands such as Starbucks, Tealive and Pizza Hut. It limits the understanding of customers' continuance usage intention toward other service providers or brands available within the food & beverage industry. The next limitation is that the study did not include qualitative input such as interviews, or focus group to complement the survey approach. The qualitative approach would have expanded respondents' feedback with further probing and a free flow of conversation.

Future avenues

The current study focused on customers in Malaysia, which may limit the generalizability of the findings. Future studies may consider incorporating different countries to compare the responses on customers' continuance intention on the usage of the mobile application. The approach may provide further insights into customer attitudes and behaviors toward mobile applications in different countries. The current study focused on mobile applications services from Starbucks, Tealive, and Pizza Hut. It is worthwhile for future studies to examine different service providers within the food & beverage industry that customers use and compare the differences. It will enable a better understanding of users' perceptions and continuance usage behavior. Next, this study look into incorporating qualitative research as it produces detailed descriptions of respondents' feelings, opinions and experiences. Researchers can further probe the respondents to better understand the thought process. Thus, it is recommended that future research consider a triangulation mixed method approach. It is a combination of qualitative and quantitative approaches that focuses on method triangulation which increases the credibility and validity of the research findings. In addition, current study incorporated mediation variables to evaluate the change process on customers' continuance usage intention of the mobile application. Future studies should consider incorporating mediation and moderation variables to obtain thorough findings concerning customers' usage behavior.

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Author contributions

Conceptualization and design, SS and MF; methodology, SS and OE; validation, AGS, and SS; analysis and interpretation of the data, AGS and SS; writing—original draft preparation, SS; writing—review and editing, MF and OE;

visualization, AGS; funding acquisition, MF; AGS. and the final approval of the version to be published, MF and OE; and all authors agree to be accountable for all aspects of the work.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Data availability statements

The data are not publicly available due to privacy or ethical restrictions by the source. The datasets generated during and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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