

## Enhancing Loyalty in Indonesian Digital MSMEs: A User Interface Quality Perspective with Novelty Mediation and Moderation Factors

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### Abstract

This study examines the determinants of user loyalty in the e-commerce industry, with a specific focus on the UMKM Bangkit mobile application in Indonesia. Using the hypothetico-deductive method, this study investigates six concepts: user interface quality, emotional experiential value, security and privacy perception, gamification elements, and loyalty. The findings from the study, which involved 400 participants and utilized SmartPLS, indicate that user interface quality has a considerable impact on loyalty. Emotional value mediates this impact. Although the quality of the user interface has a beneficial impact on how users perceive security and privacy, it does not immediately improve loyalty or act as a mediator. Gamification elements do not mitigate the link between user interface quality and loyalty. Improving the user interface and promoting emotional connection are essential for strengthening user loyalty. Future studies should concentrate on overcoming sample process restrictions and taking into account the unique context of the research. This study offers significant insights for improving user experiences and cultivating loyalty on digital platforms.

**Keywords:** User Interface Quality, Emotional Experiential Value, Security Perception, Privacy Perception, Gamification, Loyalty.

### INTRODUCTION

Intense competition and significant challenges mark the digital marketplace in Indonesia for e-commerce enterprises (Dewi & Lusikooy, 2024; Santoso, 2022). Despite the rapid growth in internet usage and the widespread popularity of online shopping, fierce competition has forced several e-commerce businesses to struggle for survival. In a constantly changing environment, user interface quality plays a crucial role in attracting and maintaining user loyalty (H. H. Chang & Chen, 2008; Eid, 2011). User loyalty, defined as the steadfast commitment of users to continually utilize a specific application or platform, is essential for the long-term success and competitive advantage of digital services. Prior research has highlighted the significance of user interface quality in fostering user loyalty, emphasizing that a skillfully designed, user-friendly, and aesthetically pleasing interface substantially enhances user satisfaction and retention (Wang & Hsu,

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2019). Nevertheless, numerous studies suggest alternate variables or give conflicting results, resulting in a limited acknowledgment of the association between user interface quality and client loyalty. While perspectives may vary, there is a consensus that user interface quality is a prominent and influential component of the digital user experience (Baraković & Skorin-Kapov, 2015; Hajar Akbar & Anuggrah Yuandi, 2024; M. C. Roy et al., 2001). This study aims to go deeper into the complexities of this relationship by analyzing the intermediate effects of emotional experience value, security perception, and privacy perception.

Emotional experiential value pertains to the emotional responses and inherent satisfaction that users derive from engaging with the interface, thereby enhancing their overall experience and enjoyment (Éthier et al., 2008; Hashim et al., 2021; Hornbæk & Hertzum, 2017; Seo et al., 2015). Security perception refers to the degree of trust that users have in the application's ability to protect their data and transactions, while privacy perception relates to their confidence in the application's capacity to maintain the confidentiality and proper handling of their personal information (Roussos & Moussouri, 2004; Skotnes, 2015; Suh & Han, 2003; Widjaja et al., 2019). Both the perception of security and privacy are essential for establishing trust, which is a vital element of loyalty in digital environments (Belanger et al., 2002; Giovanis & Athanasopoulou, 2014; Y. Kim et al., 2021; Salo & Karjaluoto, 2007). Additionally, this study introduces the concept of gamification elements as a moderating element between user interface quality and user loyalty. Researchers have recognized the potential of gamification, which involves incorporating game-design elements into non-game environments, to increase engagement and motivation. Integrating elements such as incentives, hurdles, and rankings in applications can enhance user engagement and create a more immersive and enjoyable experience (Faganel et al., 2024; Sardi et al., 2017; Xiao et al., 2022). This has the potential to strengthen the impact of user interface quality on user loyalty.

Indonesia offers a highly captivating environment for examining these dynamics. There has been a notable surge in the country's internet and online marketplace usage. Recent data indicates that Indonesia today boasts a staggering 202 million internet users, reflecting significant expansion in comparison to previous years. The rising trajectory underscores the growing importance of digital platforms in our daily lives. However, the e-commerce platform business is intensely competitive, resulting in the shutdown of other platforms due to intense rivalry (Cennamo C, 2021; Evans, 2017). As a result, it is imperative for e-marketplaces to give the utmost importance to the upkeep and enhancement of user interface quality in order to allure and maintain consumer loyalty.

This study focuses on analyzing "Umkm Bangkit," a digital marketplace specifically tailored for small and medium-sized enterprises (SMEs) in Indonesia. In Indonesia's e-commerce industry,

fierce competition necessitates a strong emphasis on factors that can sustain consumer engagement and loyalty (Felix & Rembulan, 2023). Ensuring data and privacy protection is crucial for establishing user confidence, as it creates positive perceptions of security and privacy (Casaló et al., 2007; Chin et al., n.d.). Moreover, fostering a favorable emotional encounter might enhance user allegiance, encouraging consistent utilization of the platform (Zhao et al., 2016). This study aims to provide empirical evidence that demonstrates the importance of user interface quality in affecting user loyalty. This study introduces novel mediation pathways, including emotional experience value, security perception, and privacy perception, to elucidate the connection between user interface quality and loyalty in situations where previous studies have produced inconsistent findings. Moreover, it explores the possibility of integrating gamification elements to improve the relationship between user interface quality and customer loyalty. The goal of this study is to provide valuable information to developers and marketers looking to create user interfaces that not only attract but also retain consumers in the fiercely competitive digital marketplace. It accomplishes this by assessing these variables within the UMKM Bangkit architecture.

## **LITERATURE REVIEW**

### **S-O-R Model Framework**

Mehrabian and Russell developed the S-O-R Model Framework in 1974, which forms the basis of the inquiry. The statement describes the complex connection between stimuli (S), the organism (O), and the response (R), providing a comprehensive structure for comprehending consumer behavior. This study uses the S-O-R model's basic ideas to develop its own model, specifically investigating how external cues affect consumers' internal emotions and subsequent behaviors. The S-O-R model offers valuable insights into the online site experience by examining how online platform settings influence user responses.

The term "stimulus" (S) in this study pertains to the user interface of a website, specifically its design components, including visual appeal, layout, usability, and overall user pleasure. These design aspects are essential components of the online environment and have a substantial impact on how consumers perceive and interact with the platform. Stimuli in online purchasing refer to the visual and sensory aspects of products, services, shopping experiences, and brand surroundings.

The organism component pertains to the internal emotional and psychological states of consumers, triggered by various stimuli (Sherman et al., 1997; Vieira, 2013a). This study identifies emotional experience value, security perception, and privacy perception as fundamental components of the organism. Mehrabian and Russell conceptualize emotional experience value as the dimensions of pleasure, arousal, and dominance, which they quantify using the Pleasure-Arousal-Dominance (PAD) model. Security perception and

privacy perception refer to the level of trust users have in the platform's capacity to safeguard their data and transactions, as well as their confidence in the platform's ability to maintain confidentiality and handle personal information appropriately. Both components are essential for establishing trust and cultivating loyalty among users.

The R element in this study indicates the observed outcome or behavior, specifically the level of user loyalty. The presence of environmental signals can significantly impact consumers' mental and emotional states, leading to increased user loyalty (E. C. Chang et al., 2014). This is because positive emotional responses and perceived value play a crucial role in influencing consumers' loyalty.

This study also investigates how gamification components influence the relationship between user interface quality and user loyalty. Although the S-O-R paradigm may not correlate precisely with gamification aspects, it acknowledges their ability to improve user engagement and pleasure, hence reinforcing the relationship between User interface quality and user loyalty.

The primary objective of this study is to offer a thorough comprehension of the determinants that impact user loyalty in Indonesia's highly competitive digital marketplace, specifically focusing on the "UMKM Bangkit" platform. This model aims to clarify the intricacies of user behavior and provide insights for improving user loyalty in digital settings by using the S-O-R paradigm and analyzing the impact of emotional experience value, security perception, privacy perception, and gamification components.

### **User Interface Quality**

User interface quality has become a crucial determinant of the success of digital applications, especially in the domains of e-commerce and mobile platforms (Utami et al., 2022). User interface quality, which draws from fields like Human-Computer Interaction (HCI), User Experience (UX) Design, and Cognitive Load Theory, incorporates key components such as design aesthetics, usability, functionality, and the overall user experience.

Empirical research has continuously shown that effective HCI design has a significant influence on usability, improving factors such as the ability to learn, efficiency, and user happiness (Hornbæk & Hertzum, 2017; Sørum et al., 2012). UX design, which focuses on visual design, information architecture, and interaction design, has a substantial impact on user pleasure and engagement (Odushegun, 2023). According to Türkyilmaz et al. (2015), great user experience (UX) design improves the usability and accessibility of a product, resulting in positive emotional reactions and higher user satisfaction.

Lindgaard, (2007) conducted a study that underscores the significant influence of aesthetic appeal on users' assessments of usability and enjoyment. Lavie & Tractinsky, (2004) further investigate the influence of aesthetics on customers' emotional reactions. Zahabi et al. (2015), emphasizes the importance of incorporating essential

usability characteristics such as consistency and error prevention into the design of interfaces to ensure their effectiveness. (Venkatesh et al., 2000) emphasize the importance of user interface quality in shaping technology's perceived ease of use and utility, which has a significant impact on its acceptability.

Norman (2004) highlights the significance of emotional design in the creation of favorable user experiences. He argues that interfaces that are well-designed elicit pleasant emotional reactions, which in turn impact satisfaction and loyalty. Research conducted by Shneiderman (1992) and Benyon (2014) emphasizes the importance of intuitive and responsive interfaces in improving user engagement.

The diverse and complex characteristics of User interface quality, including its visual attractiveness, ease of use, practicality, effectiveness, coherence, and ability to evoke emotions, greatly influence how consumers perceive and interact with a product. Empirical research repeatedly shows that interfaces that are well-designed have a beneficial effect on usability, visual appeal, utility, and emotional involvement (T.-Y. Chang, 2006; Y. Lee & Chen, 2011; O'Brien & Cairns, 2016). This eventually results in higher levels of user satisfaction, engagement, and loyalty. Cyr, (2014) research demonstrates a noteworthy association between User Interface Quality, trust, user pleasure, and e-loyalty. Furthermore, Flavián et al. (2006)'s study provides evidence that a website's usability and design quality significantly influence consumer loyalty.

Ultimately, User interface quality is crucial in influencing user behavior and fostering loyalty in digital settings. The complex nature of the user experience impacts different areas, emphasizing its significance in promoting user pleasure, engagement, and ultimately loyalty. Based on the compelling empirical evidence that strongly supports the significant influence of user interface quality on loyalty, we propose the following hypothesis:

H1: The user interface's quality significantly impacts loyalty. In the rapidly evolving digital landscape, it is crucial to give utmost importance to the upkeep and improvement of customer interface quality to effectively attract and retain client loyalty in fiercely competitive markets.

### **Emotional experiential value**

Within the realm of e-commerce, there is an increasing recognition of the significance of providing customers with value, not only in terms of items or services but also in their emotional encounters. Customers are inclined to seek positive emotional experiences during their purchasing journeys (Aiello et al., 2020; Kwortnik & Ross, 2007), as emphasized in the literature. Emotional experiences are considered critical in comprehending consumer behavior because they arise from individuals' interpretations and reactions to different situations. The dynamic relationship between

individuals' circumstances and their personal interactions emphasizes the importance of emotional and experiential worth.

The strategic technique of emotional experience value uses several channels to influence consumers' emotions, including communication, product offerings, locations, websites, and human encounters (H. Chen et al., 2014; Varshneya et al., 2017). Outstanding services that strive to elicit emotional responses through events, agents, and aspects have a long-lasting effect on consumers' moods and emotions (Fernández-Rodicio et al., 2022; Valor et al., 2022). This marketing approach surpasses conventional conceptions by highlighting the significance of experiences in influencing preferences, perceptions, satisfaction, and brand value.

People highly regard experiences for their ability to engage the senses, evoke emotions, and activate cognitive processes, thereby gratifying curiosity and providing lifestyle-oriented information that aids in making purchasing decisions. The design attributes of a website, including its aesthetics and product presentation, are critical in captivating consumers by providing distinctive and pleasurable encounters. Favorable encounters form strong emotional bonds with a company or service, resulting in recurring visits and loyalty.

Emotional loyalty, which refers to a stronger dedication to a company that goes beyond financial rewards, highlights the importance of forming emotional connections with customers (Gracia et al., 2011; Hwang et al., 2019; Yim et al., 2008). Merely conducting transactions may not be enough to establish authentic connections; instead, it is necessary to provide unique value in order to cultivate loyalty. The study incorporates the notion of emotional experiential value, which is a new variable. This concept draws its foundation from various theories, including emotional marketing, philosophical perspectives on experience, and concepts such as the experience economy and experience marketing. Using these theoretical foundations, this study aims to investigate how emotional experiential value affects customer loyalty on e-commerce platforms.

Emotion as the primary determinant of long-term loyalty in emotionally engaged customers (Claffey & Brady, 2019). Within this specific setting, we put forward the subsequent hypotheses:

H2: Emotional experience value serves as a crucial intermediary in the connection between user interface excellence and loyalty.

H3: The emotional experiential value significantly influences brand or product loyalty.

H4: Emotional experiential value acts as a vital mediator in the connection between user interface quality and emotional engagement. The hypotheses emphasize the significant impact of emotional experience value on users' perception, emotional engagement, and long-term loyalty towards brands or products in the e-commerce industry.

### **Security Perception**

The perception of security is crucial in the digital domain, particularly in e-commerce and mobile applications, where consumers exchange sensitive information (Bandara et al., 2020; Kuruwitaarachchi et al., 2019; Marriott et al., 2018; Saeed, 2023; Schwiderski-Grosche & Knospe, 2002). It refers to the personal sense of security that people experience when interacting with internet platforms. By providing clear and understandable information, thoughtfully crafted user interfaces significantly influence how people perceive security measures. For example, presenting security certifications and explicit regulations might bolster trust (Habbal et al., 2024). Empirical data emphasizes the significance of fostering consumer loyalty. Research has demonstrated a clear correlation between how consumers perceive the level of security on a platform and their trust in it. This, in turn, results in higher levels of loyalty and repeated transactions (Flavián et al., 2006; Williams, 2021).

Furthermore, the perception of security serves as a mediator between the quality of the user interface and the user's loyalty. An interface of superior quality improves the feeling of security, hence promoting trust and dedication. Users that have a tendency to trust a platform are more inclined to stay loyal (Wang et al., 2021).

To put it simply, the quality of the user interface has a significant impact on how users perceive security, ultimately affecting their loyalty (H. H. Chang & Chen, 2009a). Improving the quality of the interface not only enhances the feeling of security but also promotes loyalty, giving platforms a competitive edge in the digital environment. Based on these observations, we put forward the following hypotheses:

H5: The user interface's quality significantly affects the feeling of security.

H6: The way users perceive security significantly influences their loyalty.

H7: Suggests that the impression of security plays a role in mediating the relationship between user interface quality and user loyalty.

These theories highlight the complex connection between the quality of the user interface, the perception of security, and user loyalty in the digital environment. Their emphasis is on prioritizing security measures and successfully communicating them through user-friendly interface designs to foster user confidence and long-term commitment.

### **Perception of Privacy**

Privacy plays a crucial role in e-commerce and mobile apps, influencing user behavior and loyalty. Users evaluate platforms according to their capacity to safeguard personal data, a concept known as user privacy perception (Flavián et al., 2006; Shin et al., 2022). Information systems theories emphasize the need for privacy in establishing trust and loyalty. Empirical research constantly demonstrates the influence of privacy on individuals' engagement and loyalty. Users have a preference for platforms that have strong and

effective privacy controls in place (Belanger & Crossler, 2019). According to Dabbagh & Rayes, 2018 a robust user interface quality greatly improves the perception of privacy by providing explicit policies and secure procedures for handling data. This impacts consumers' perceptions of platform reliability and allegiance.

The correlation between user interface quality and the perception of privacy is apparent. An interface that is well-designed successfully conveys information about privacy protections (Bansal et al., 2016) According to Xu et al. (2015) and (Dinev et al., 2013), users who have confidence in a platform's privacy protections tend to be more loyal, leading to higher rates of customer retention and repeat purchases. Gerber et al. (2018), assert that transparent privacy policies and user control over data enhance privacy perception and loyalty.

Furthermore, the perception of privacy acts as a mediator between user interface quality and loyalty. The user interface quality has an indirect impact on loyalty by enhancing the impression of privacy (Bansal et al., 2016). Platforms that have clear and open privacy policies, as well as provide users with control over their own data, promote loyalty among users (Gerber et al., 2018). Therefore, enhancing the user interface quality can positively influence the perception of privacy, thereby fostering loyalty. Based on these observations, we put forward the following hypotheses:

H8: The user interface's quality significantly influences the feeling of privacy.

H9: The way users perceive their privacy significantly influences their loyalty.

H10: The feeling of privacy acts as a mediator in the relationship between user interface quality and user loyalty. These ideas highlight the significance of establishing robust privacy measures and effectively communicating them through well-crafted interfaces to build trust and foster enduring user loyalty in the competitive realm of e-commerce and mobile applications.

### **Elements of Gamification**

Established in 2011, gamification enhances community participation by integrating game-like elements into non-gaming scenarios (Thiel & Ertiö, 2018). This technology's versatility enables its application in various fields, including urban planning and commerce. It also provides incentives to encourage greater participation. Gamification, when implemented in corporate contexts, improves productivity and teamwork by utilizing features such as live sales competitions (Antin & Churchill, 2011; Treiblmaier et al., 2018).

Integrating gamification into well-designed user interfaces for websites improves engagement and usability (Y. Xu et al., 2020). According González et al. (2016), incorporating features such as points and leaderboards enhances user engagement and contentment. Gamification seeks to incentivize users to achieve certain objectives,



thereby promoting active participation and a sense of contentment (Kuo & Chuang, 2016).

Gamification components have a direct impact on loyalty by promoting a sense of accomplishment and inclusion, as well as motivating regular usage (Huang & Kuo, 2020). Gamification acts as a mediator in the relationship between user interface quality and loyalty, augmenting engagement and loyalty by utilizing incentives and rewards (Elgarhy et al., 2024). Based on empirical evidence, we put forward the following hypotheses:

H11: The inclusion of gamification elements has a moderating impact on the relationship between the quality of the user interface and user loyalty, thereby strengthening this correlation.

The integration of gamification and high user interface quality creates a powerful synergy that enhances user engagement, satisfaction, and loyalty in e-commerce and mobile applications. By harnessing the motivational power of gamification, platforms may offer more engaging and rewarding user experiences, fostering long-term loyalty and gaining a competitive edge in the digital economy.

## **Loyalty**

Customer loyalty significantly influences the success of e-commerce enterprises, impacting long-term performance and overall store value (Faraoni et al., 2019; E.-J. Lee & Overby, 2004; J. Lee et al., 2000). The quality of the user interface is essential for the success of e-commerce, as it enables customers to develop loyalty by providing them with a seamless and pleasurable purchasing experience. Tariq Khan, (2013), characterize customer loyalty as their consistent preference for a specific seller, influenced by their favorable attitudes toward the organization (Srinivasan et al., 2002)

In the digital domain, loyalty is defined as the propensity of consumers to return to websites, which indicates a favorable attitude toward sustained engagement (Hollebeek & Macky, 2019; Thakur, 2016). Loyalty is the act of repurchasing preferred products or services in the face of competitive pressures (Arslan, 2020), which in turn cultivates a preference for a particular website's purchasing experience over alternatives (Pritchard et al., 1992).

The quality of the user interface significantly influences consumer loyalty by ensuring effortless and pleasurable purchasing experiences (Hausman & Siekpe, 2009). Interfaces that are well-designed foster positive emotional connections with clients, which in turn increases loyalty (Lim et al., 2006; Luo et al., 2011). Factors such as user-friendly navigation and alluring visual design influence consumers' decisions to revisit websites. Trust and security perceptions are also essential for fostering loyalty, as platforms prioritize data privacy and secure transactions to maintain consumer trust (Y. Chen et al., 2022; Nadeem et al., 2021).

In essence, the process of fostering loyalty in e-commerce entails the development of high-quality user interfaces, the establishment of

emotional connections with consumers, and the implementation of robust security measures to guarantee positive and dependable experiences. Understanding these factors can help e-commerce businesses develop effective strategies to ensure sustained profitability and increase consumer loyalty in the competitive online landscape. The research model is proposed as Figure 1.

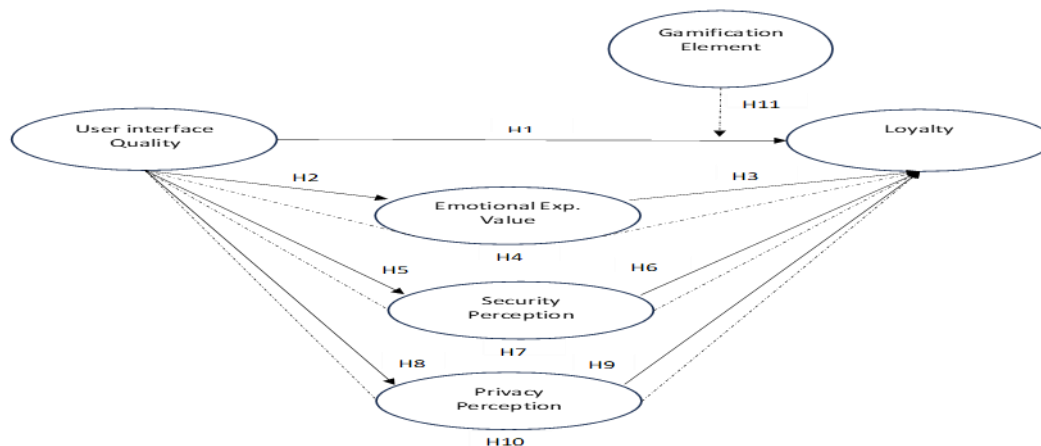
## METHOD

This work employs the hypothetico-deductive approach, which involves formulating a broad theory and then refining it to develop particular hypotheses. The conceptual framework consists of six constructs: user interface quality, emotional experiential value, security and privacy perception, gamification components, and loyalty. Hypothesis testing aims to determine causal links between these variables. The data gathered from users of the UMKM Bangkit mobile app in Indonesia, specifically targeting individuals between the ages of 17 and 50 who engage in frequent e-commerce purchases, yields concrete loyalty indicators. (Sheth & Roscoe, 1975), recommends a sample size of 400 participants due to the substantial population and the use of convenience sampling.

We measure the six dimensions using a five-point Likert scale in a self-administered online questionnaire that includes 58 statements from different sources. Reliability, validity, and bootstrapping (N = 5000) analyses ensure the robustness of the suggested model. The primary objective of this research is to clarify the aspects that impact client loyalty in e-commerce. It intends to provide valuable insights on how to improve the user experience and cultivate lasting customer relationships. Using the variables, we created a summary of the constructs for the operational definitions listed in Table 1.

## RESULT AND DISCUSSION

This research aims to assess the outcomes using metrics such as composite reliability, average variance extracted (AVE), convergent validity, factor loading, and discriminant validity.



**Figure 1. Research Model Framework**

**Table 1. Definitions Operational Variables**

<b>Variables, Definition, and Indicators</b>	<b>Source of Study</b>
User interface quality refers to the degree to which an interface is user-friendly, aesthetically pleasing, consistent, easy to learn, task-appropriate, and responsive, ensuring a seamless and effective interaction experience for users	Lavie & Tractinsky, 2004; Pangalos, 1993; Petrie & Kheir, 2007; Roy et al., 2001
- Usability: How easily users can navigate and complete tasks using the interface. This includes ease of learning, efficiency of use, memorability, error frequency and severity, and user satisfaction	
- Aesthetics: The visual appeal and design of the interface. A well-designed interface is visually pleasing and contributes to a positive user experience	
- Functionality: The extent to which the user interface supports the features and functions required by users. It includes reliability and the availability of all necessary tools and options	
- Accessibility: The interface's ability to be used by people with varying abilities, ensuring inclusivity and compliance with accessibility standards	
- Responsiveness: How quickly the interface responds to user inputs. This includes loading times and interaction speeds	
- Consistency: The uniformity in design and function across different parts of the application, which helps users predict and understand interface behavior	
Emotional Experiential Value is the affective response users have when interacting with a website, characterized by pleasure, arousal, educational value, and aesthetic appeal, enhancing overall satisfaction and engagement	Pine & Gilmore, (2013); Vieira, (2013b)
- Pleasure: The positive feelings of enjoyment and satisfaction that users experience during interaction.	
- Arousal: The degree of stimulation and excitement that users feel while engaging with the interface.	
- Educational: The extent to which the interface provides informative and enlightening content that enhances users' knowledge and understanding.	
- Esthetic: The visual and sensory appeal of the interface, contributing to a pleasing and attractive user experience.	
Security perception refers to consumers' perception of safety in e-commerce transactions	H. H. Chang & Chen, (2009b); Eid, (2011); Flavián et al., (2006); M. J. Kim et al., (2011); Roca et al., (2009)
- Availability of transmission mechanisms to ensure user information is secure	
- Availability of technical capacity to guarantee consumer data safety.	
- Financial assurance when making purchase transactions on the website.	
- Security in making electronic payments/e-payments.	
Privacy perception refers to consumers' perception of their ability to control all information related to them from others around them	(Al-Gasawneh et al., 2022; Armesh et al., 2010; Eid, 2011; Flavián et al., 2006)
- Legal guarantees for the protection of consumer data.	
- Collection of personal consumer data necessary for website activities.	
- Obtaining consumer consent for the dissemination of information.	
- Comfort provided to consumers when sharing information.	
- Consumer privacy being the highest priority.	

Variables, Definition, and Indicators	Source of Study
Gamification elements refer to the integration of game-design elements and principles into a product to enhance user motivation and engagement. This involves incorporating features such as rewards, competitions, and interactive challenges to motivate users to participate actively and feel more connected to the product.	Antin & Churchill, (2011); Böckle et al., (2017); Shaltoni et al., (2015); Sheetal et al., (2023); Xiao et al., (2022)
- Motivation to the internal drive or incentive that prompts individuals to take action or engage in activities, often driven by rewards, goals, or personal interest.	
- Engagement for active participation, involvement, and emotional commitment that individuals exhibit towards an activity, task, or product, often resulting in a stronger connection and interaction with it	
Loyalty is customers consistently prefer and commit to a brand or product, evidenced by their willingness to recommend it to others and their intention to make repeat purchases.	(Agrawal et al., 2013; Lim et al., 2006; Nugroho et al., 2023; S. K. Roy & Butaney, 2014; Tariq Khan, 2013)
- Word of Mouth (WOM): Customers are willing to actively recommend the brand or product to others.	
- Intention to Repurchase: This indicator measures the likelihood that customers will buy the brand or product again in the future	

The validity assessment in this study involved ensuring that the instruments or statement items had values higher than 0.70. Therefore, we eliminated items with lower values. All variables exhibited credibility, as evidenced by Average Variance Extracted (AVE) values surpassing 0.5 and composite reliability over 0.6. Furthermore, the Cronbach's alpha values exceeded 0.7, indicating a satisfactory level of reliability, as demonstrated in Table 2.

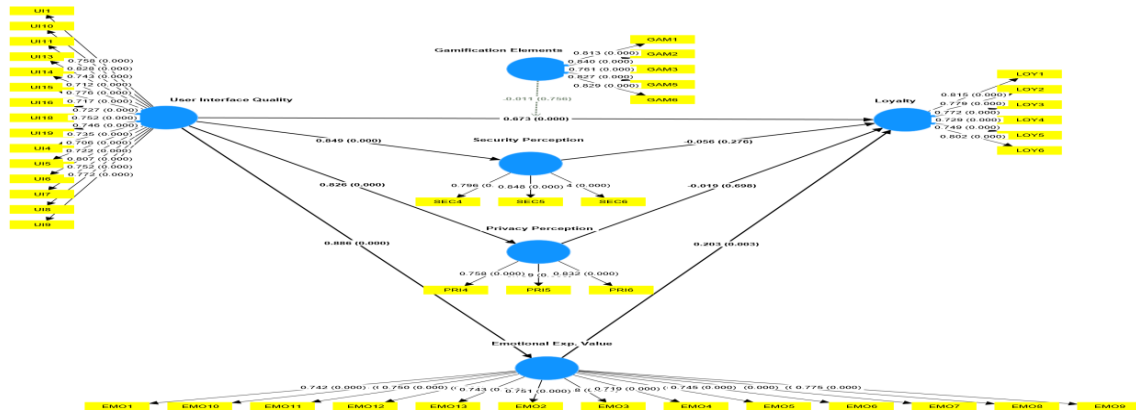
The PLS path model in Table 3, assessed discriminant validity and established the distinctiveness of reflecting constructs. The loadings of each variable's indicators on their specific constructs were higher than those on other constructs (Sarstedt et al., 2021). Therefore, all conceptions were considered to be genuine and legitimate according to these criteria.

**Table 2. Construct Reliability and Validity**

Construct	Cronbach Alpha	Composite Reliable	AVE
Emotional Experiential Value	0.933	0.941	0.553
Gamification Elements	0.873	0.908	0.663
Loyalty	0.867	0.900	0.600
Privacy Perception	0.712	0.839	0.635
Security Perception	0.761	0.863	0.677
User Interface Quality	0.945	0.951	0.564

**Table 3. Discriminant Validity**

	Emotional Exp. Value	Gamification Elements	Loyalty	Privacy Perception	Security Perception	User Interface Quality
Emotional Exp. Value	<b>0.886</b>					
Gamification Elements	0.833	<b>0.814</b>				
Loyalty	0.827	0.746	<b>0.875</b>			
Privacy Perception	0.863	0.687	0.746	<b>0.826</b>		
Security Perception	0.838	0.722	0.751	0.736	<b>0.849</b>	
User Interface Quality	0.743	0.773	0.775	0.797	0.823	<b>0.751</b>



**Figure 2. Outer Model**

Figure 2 depicts the interdependence of variables, emphasizing the crucial influence of user interface quality on fostering customer loyalty. Strong positive correlations exist between user interface quality and emotional experiential value, as well as perceptions of security and privacy. These factors have a significant impact on user loyalty. The user interface's quality is a strong indicator of customer loyalty because it provides emotional and experiential value. On the other hand, if the way people perceive security and privacy affects the quality of the interface, then e-loyalty decreases. The presence of gamification components as a moderator shows a negligible, adverse connection, suggesting a restricted influence on user loyalty.

The Table 4 displays the path coefficients, which indicate the results of the direct and indirect effect tests. The following conclusions have been derived:

The investigation identified substantial correlations between the quality of the user interface and other parameters that impact customer loyalty. The quality of the user interface has a direct and positive influence on loyalty (a), emotional experiential value (b), and the feeling of security (e). Emotional experiential value had a favorable effect on loyalty (c), and there was evidence that user interface quality indirectly influenced loyalty through emotional experiential value (d). However, the study did not demonstrate a statistically significant influence of security perception (f) or privacy perception (g) on loyalty. Furthermore, the study demonstrated the insignificant impact of gamification aspects on the relationship between user interface quality and loyalty. In summary, these results indicate that user interface quality has a significant impact on customer loyalty, both directly and indirectly through emotional experiential value (i). However, we did not find any statistically significant effects on security (j) and privacy perception (k), nor the moderating influence of gamification elements (h).

**Table 4. Path Coefficient Direct and Indirect Effect**

	Original sample (O)	Standard deviation (STDEV)	T statistics ( O/STDEV )	P values	Result
<b>Direct effect:</b>					
(a) User Interface Quality -> Loyalty	0.673	0.060	11.274	0.000	Significant
(b) User Interface Quality -> Emotional Exp. Value	0.886	0.009	93.373	0.000	Significant
(c) Emotional Exp. Value -> Loyalty	0.203	0.068	2.991	0.003	Significant
(d) User Interface Quality -> Security Perception	0.849	0.015	56.682	0.000	Significant

(e) Security Perception -> Loyalty	-0.056	0.052	1.090	0.276	Not Significant
(f) User Interface Quality -> Privacy Perception	0.826	0.016	51.551	0.000	Significant
(g) Privacy Perception -> Loyalty	-0.019	0.050	0.388	0.698	Not Significant
(h) Gamification Elements x User Interface Quality -> Loyalty	-0.011	0.035	0.311	0.756	Not significant
<b>Indirect effect:</b>					
(i) User Interface Quality -> Emotional Exp. Value -> Loyalty	0.180	0.060	2.981	0.003	Significant
(j) User Interface Quality -> Security Perception -> Loyalty	-0.048	0.044	1.083	0.279	Not significant
(k) User Interface Quality -> Privacy Perception -> Loyalty	-0.016	0.041	0.387	0.699	Not significant

**Table 5. Effect Size**

<b>Direct Effect:</b>	<b>f-square</b>	<b>Result</b>
Emotional Exp. Value -> Loyalty	0.021	Low Effect
User Interface Quality -> Emotional Exp. Value	3.644	High Effect
User Interface Quality -> Loyalty	0.335	High Effect
User Interface Quality -> Privacy Perception	2.145	High Effect
User Interface Quality -> Security Perception	2.574	High Effect
<b>Indirect effect:</b>	<b>f-square</b>	<b>Result</b>
User Interface Quality -> Emotional Exp. Value -> Loyalty	0,032	Low Mediating Effect

The effect size analysis ( $f^2$ ) was performed to evaluate the robustness of the model and ascertain the relative influence of latent independent factors on the latent dependent variable. Hair et al., (2020) state that a value of 0.35 for  $f^2$  implies a substantial impact, 0.15 suggests a moderate effect, and 0.02 suggests minimal or no influence. Table 5 provides a summary of the  $f^2$  values for both direct and indirect variables. The impact of emotional experience value on loyalty was found to be minimal, as indicated by a  $f^2$  value of 0.021. Nevertheless, other autonomous variables had substantial effects.

The emotional experience value had the greatest  $f^2$  value of 3.644, specifically in relation to user interface quality. Ogbeibu et al. (2021) developed the Upsilov V formula, which determined that the emotional experience value acts as a minor mediator (0.032) between user interface quality and loyalty. In addition, SEM analysis is considered satisfactory if it satisfies the criteria for Goodness of Fit Model, which include R-square, Q-square, SRMR, and NFI ((Yap et al., 2012).

**Table 6. R-square and Predictive Relevance Analysis**

	<b>R-square</b>		<b>Q<sup>2</sup>predict</b>	
	<b>Value</b>	<b>Result</b>	<b>Value</b>	<b>Result</b>
Emotional Exp. Value	0.784	High influence	0.782	High predictive accuracy
Loyalty	0.779	High influence	0.769	High predictive accuracy
Privacy Perception	0.681	High influence	0.679	High predictive accuracy
Security Perception	0.720	High influence	0.718	High predictive accuracy

The R-square metric accurately measures the proportion of the endogenous variable's variability that the exogenous variables explain. Table 6 presents the R-square values for emotional experiential value (0.784), loyalty (0.779), privacy perception (0.681), and security perception (0.720). These numbers demonstrate a significant effect, as the variables in the model explain a large proportion of the variability when compared to external influences.

The Q-square statistic assesses a model's predictive accuracy; values above 0 indicate the model's relevance. The Q-square values for

emotional experience value, loyalty, privacy perception, and security perception are 0.782, 0.769, 0.679, and 0.718, respectively. These values indicate a good ability to predict outcomes based on these factors (Hair et al., 2020).

**Table 7. Fit Model Measurement**

	<b>Saturated Model</b>	<b>Estimated Model</b>
SRMR	0.084	0.089
d_ULS	7.238	8.136
d_G	12.059	12.246
Chi-square	14.327	14.528
NFI	0.441	0.433

SRMR, or Standardized Root Mean Square Residual, measures model fit by comparing the correlation matrix of the data with the estimated correlation matrix of the model. An SRMR below 0.08 indicates a good fit, while a value between 0.08 and 0.10 is considered acceptable. NFI, or Normed Fit Index, assesses fit by calculating the Chi-square value of the model, with values between 0 and 1 indicating good fit for all indicators. Table 7 presents the results of the model fit test. Table 8 provides a summary of the study's hypotheses and findings.

**Table 8. Hypothesis Results**

<b>Hypothesis</b>		<b>Result</b>
H1	The user interface's quality significantly impacts loyalty	Accepted
H2	Emotional experience value serves as a crucial intermediary in the connection between user interface excellence and loyalty.	Accepted
H3	The emotional experiential value significantly influences brand or product loyalty.	Accepted
H4	Emotional experiential value acts as a vital mediator in the connection between user interface quality and emotional engagement.	Accepted
H5	The user interface's quality significantly affects the feeling of security.	Accepted
H6	The way users perceive security significantly influences their loyalty.	Rejected
H7	The impression of security plays a role in mediating the relationship between user interface quality and user loyalty.	Rejected
H8	The user interface's quality significantly influences the feeling of privacy.	Accepted
H9	The way users perceive their privacy significantly influences their loyalty.	Rejected
H10	The feeling of privacy acts as a mediator in the relationship between user interface quality and user loyalty.	Rejected
HI1	The inclusion of gamification elements has a moderating impact on the relationship between the quality of the user interface and user loyalty	Rejected

## CONCLUSION

This study aims to investigate the complex relationship between the quality of user interface and user loyalty in the context of mobile commerce applications. The objective is to determine how several

factors, such as emotional value, security and privacy perceptions, and the moderating influence of gamification aspects, influence user loyalty. This study aims to improve our understanding of consumer behavior dynamics in mobile commerce by expanding upon the existing stimulus-organization-Response (S-O-R) model, initially introduced by Mehrabian and Russell in 1974. Specifically, the inclusion of emotional experience value as a mediating component provides substantial theoretical contributions. The emotional experiential value, which includes elements like pleasure, arousal, and aesthetic appeal, is believed to have a significant impact on the connection between user interface quality and user loyalty.

The study highlights the crucial significance of user interface quality in eliciting favorable emotional reactions among users. Visual design, navigation, and consistency are considered important factors that influence user pleasure and attachment to a mobile application. These factors also contribute to enhanced loyalty towards the application. Although emotional experiential value is a key mediator in this relationship, the study shows that perceptions of security and privacy do not have a strong impact on user loyalty within the S-O-R framework.

Furthermore, the incorporation of gamification aspects, while improving user involvement, does not appear to directly modulate the relationship between user interface quality and loyalty. However, the study acknowledges the importance of gamification in enhancing the overall user experience by incorporating enjoyable components that promote active engagement and interaction with the application.

Practically speaking, these findings have important implications for the UMKM Bangkit mobile application. The statement underscores the necessity of consistently improving the user interface to match changing user expectations and design norms. In addition, customizing user experiences to include aspects of emotional and experiential value and implementing strong security measures can enhance user loyalty and happiness.

Nevertheless, the study recognizes various constraints that require careful evaluation. These factors encompass geographical limitations, restrictions on sample size, biases in demographics, and dependence on self-reported data. Future research efforts should expand the scope of investigation, include a broader range of participants, and utilize a variety of study methods to overcome these constraints. Through this approach, researchers can enhance our comprehension of user behavior and preferences, thereby influencing more efficacious techniques for improving user interactions and service quality in mobile applications.

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