Kasetsart Journal of Social Sciences 45 (2024) 889–900

Kasetsart Journal of Social Sciences

journal homepage: http://kjss.kasetsart.org

Regulatory focus, perceived risk and impulse buying on mobile commerce: The moderating effect of social influence

Hu Geng*, Wong Ming Wong

International College, Krirk University, Bangkok 10220, Thailand

Article Info

Article history:
Received 15 June 2023
Revised 16 October 2023
Accepted 23 October 2023
Available online 30 August 2024

Keywords:
impulse buying,
perceived risk,
regulatory focus,
social influence

Abstract

Impulse buying refers to unplanned or spontaneous purchasing behavior. Previous research has primarily focused on environmental psychological states, lacking studies that link impulse buying with customer personality traits. This study aims to investigate the impact of regulatory focus, perceived risk, and social influence on impulse buying behavior. Empirical results indicate that promotion focus has a negative effect on perceived risk, while prevention focus has a positive effect on perceived risk. Perceived risk has a negative impact on impulse buying behavior. Marketers can reduce perceived risk and promote impulse buying behavior by providing sufficient information, guaranteeing credibility, offering satisfaction guarantees, and implementing refund policies. Furthermore, social influence moderates the relationship between promotion focus and impulse buying, strengthening positive associations and reducing negative associations. These findings contribute to a better understanding of consumer impulse buying behavior in mobile commerce and provide guidance for marketers in designing strategies to promote impulse buying. In conclusion, this study offers valuable insights for consumer behavior research and marketing practices.

Introduction

With the rapid development of mobile technology and the widespread use of smartphones, mobile commerce has become an integral part of modern consumers' daily lives. Consumers can access online stores, purchase goods, and enjoy various services anytime and anywhere through mobile devices. The convenience and flexibility have had a profound impact on consumer behavior, especially in situations involving impulse buying behavior (Um et al., 2023). Impulse buying refers to unplanned or spontaneous purchasing behavior (Muruganantham & Bhakat, 2013). Currently, online shopping websites resemble physical shopping centers (Bourg et al., 2021), making various stimuli likely to trigger impulse buying. Impulse purchases account for 40 percent to 80 percent

* Corresponding author.
E-mail address: hugeng-ld@qq.com (H. Geng).

https://doi.org/10.34044/j.kjss.2024.45.3.19
2452–3151/© 2024 Kasetsart University.

of total customer purchases (Khokhar et al., 2019). Previous research on impulse buying has primarily focused on environmental psychological states such as website quality, product assortment, price attributes, and visual attractiveness, but there has been a lack of studies linking impulse buying with customer personality traits (Lin et al., 2018). When consumers engage in impulse buying, it is an unconscious, thoughtless, and immediate purchase behavior based on the impulse to buy a product (Abdelsalam et al., 2020). However, consumer buying decisions are influenced by various motivations and can be distinguished based on the primary criterion: whether consumers are motivated to achieve specific desired states or to avoid undesired states (Das, 2015, 2016).

The regulatory focus theory, proposed by Higgins (1997), examines individuals' self-regulatory orientations during goal pursuit. Promotion focus prioritizes positive outcomes (gains/non-gains), while prevention focus focuses on needs fulfillment and negative outcomes (losses/non-losses). This theory has gained recognition in psychology and has been applied to marketing and advertising (Sit et al., 2022). It offers insights into human decision-making processes, making it valuable across different domains (Das, 2015, 2016; Higgins et al., 1997). The regulatory focus theory has attracted attention and found applications in various fields due to its relevance and potential in understanding human decision-making processes.

The relationship between regulatory focus and perceived risk has been overlooked in previous research (Das, 2015). Moreover, limited studies have explored the interplay between perceived risk, social influence, and impulse buying. Bridging this gap is crucial for understanding consumer behavior and increasing marketing revenue for e-commerce businesses (Rosário & Raimundo, 2021). This study aims to verify the connection between impulse buying and customer personality traits, reflecting regulatory focus. Online retailers can leverage these traits, promotion focus, and prevention focus, to attract impulsive buyers or first-time visitors, enabling more targeted marketing and greater profitability (Rosário & Raimundo, 2021).

Despite extensive attention to impulse buying in various research contexts, such as its manifestation in the hunger marketing model of live-streaming e-commerce (Zhang et al., 2022), its characteristics in virtual reality shopping (Chen, Ha, et al., 2022), its implications in social network marketing (Dodoo & Wu, 2019), its examination using the Stimulus-Organism-Response (S-O-R) model in online settings (Lin et al., 2022), its prevalence in mobile commerce-driven travel product purchases (Um et al., 2023), and the exploration of psychological factors related to online impulse buying (Pacheco et al., 2022), nonetheless, these studies predominantly concentrate on the environmental psychological states, neglecting the investigation of the connection between impulse buying and customer personality traits (Coelho et al., 2023; Cuandra, 2022; Das, 2015). In addition, previous research has overlooked the interaction between regulatory focus, perceived risk, and social influence (Das, 2015). Therefore, it is necessary to fill this research gap, gain further insights into consumer behavior, explore the relationship between regulatory focus and impulse buying, and examine the impact of perceived risk and social influence on impulse buying. This will contribute to a better understanding of customers' impulse buying behavior and enhance marketing revenue for e-commerce businesses.

In summary, this study aims to explore the relationship between impulse buying and customer personality traits, reflecting their regulatory focus. Currently, research on impulse buying primarily focuses on environmental psychological states, such as website quality, product assortment, price attributes, and visual attractiveness, but lacks investigation into the connection between impulse buying and customer personality traits. Additionally, previous studies have overlooked the relationship between regulatory focus, perceived risk, and social influence. This study aims to fill this research gap, deepen our understanding of consumer behavior, and provide more targeted marketing strategies for e-commerce businesses to increase market revenue.

Theoretical Background and Hypotheses Development

Self-regulation theory

The Self-Regulation Theory, proposed by Canadian psychologist Zimmerman (1989), posits that individuals' learning and development are achieved through the processes of self-monitoring, self-evaluation, and self-feedback. Impulse buying is often influenced by emotions, desires, social pressures, or environmental stimuli. While the self-regulation theory focuses on individual's internal self-control processes, it can offer some understanding of the background and motivations behind impulse buying behavior (Dorina et al., 2023; Redine et al., 2023). Impulsive buying can be seen as a manifestation of self-regulation failure, which may involve a lack of goal-setting, insufficient self-monitoring, emotional regulation influences, and interference from environmental factors (Redine et al., 2023).

Regulatory focus theory

The Regulatory Focus Theory is a theory of goal pursuit based on the principles of approach motivation and avoidance motivation. This theory proposes two independent self-regulatory orientations, namely, promotion focus and prevention focus, to guide individuals' behavior in pursuing goals (Barari et al., 2020; Higgins, 1997). Individuals with a promotion focus are more sensitive to the presence or absence of positive outcomes, while individuals with a prevention focus are more sensitive to the presence or absence of negative outcomes (Higgins et al., 1997). Recently, the Regulatory Focus Theory has received extensive research attention in marketing contexts, particularly in the realm of retail shopping behavior (Lee et al., 2022; Shi et al., 2022). In this regard, the Regulatory Focus Theory integrates multiple factors that influence consumer behavior (Das, 2016; Higgins et al., 1997; Lee et al., 2022).

Research Model and Hypothesis

Regulatory focus and perceived risk

According to the regulatory focus theory, promotion focus and prevention focus are two independent self-regulatory orientations that influence individuals' behaviors and decision-making processes in pursuit of goals (Das, 2015; Higgins et al., 1997). Individuals with a promotion focus are more attentive to the presence or absence of positive outcomes, while those with a prevention focus are more attentive to the presence or absence of negative outcomes (Higgins et al., 1997). Therefore, these two foci may have different effects on consumers' responses to perceived risk.

Based on previous research findings, there is a negative relationship between promotion focus and perceived risk. Individuals with a promotion focus tend to seek positive outcomes, pay more attention to potential benefits and rewards, and are less sensitive to potential risks and losses (Lin et al., 2012; Wang et al., 2019). Therefore, these individuals may exhibit a more positive and optimistic attitude when facing perceived risks, being more accepting and willing to take certain risks, and showing a higher tolerance for perceived risks. Conversely, there is a positive relationship between prevention focus and perceived risk. Individuals with a prevention focus are more attentive to potential negative outcomes, emphasize avoiding potential losses and risks, and tend to be more cautious and careful (Lin et al., 2012; Wang et al., 2019). Consequently, these individuals may display a more cautious and conservative attitude when facing perceived risks, being more prone to worry and hesitation, and exhibiting a higher sensitivity to perceived risks. Based on these observations, this study proposes the following hypotheses:

H1: Promotion focus negatively affects perceived risk.

H2: Prevention focus positively affects perceived risk.

Perceived risk and impulse buying

Higher perceived risk can lead to consumer hesitation and concerns in purchase decisions (Pacheco et al., 2022). When faced with higher perceived risk, consumers pay more attention to potential negative outcomes and possible losses (Lavuri et al., 2022). They invest more time and effort in researching and evaluating different options to ensure making informed purchase decisions (Marakanon & Panjakajornsak, 2017). They become more cautious in weighing the pros and cons, seeking additional information and assurances to reduce potential risks and the likelihood of regret (Chen, Ruangsri, et al., 2022). In situations with higher perceived risk, consumers often reduce the frequency and magnitude of impulsive purchases, tending toward a conservative and rational shopping approach (Dodoo & Wu, 2019). They place more emphasis on product or service quality, safety, and reliability to mitigate risks (Pacheco et al., 2022). Based on these observations, this study proposes the following hypotheses:

H3: Perceived risk negatively affects impulse buying.

Promotion focus, prevention focus, and impulse buying

According to the regulatory focus theory, individuals with a promotion focus are more attentive to positive outcomes or goals. They tend to pursue potential benefits and rewards and rely more on intuition and emotions in decision-making and actions (Das, 2015; Higgins et al., 1997). Conversely, individuals with a prevention focus are more concerned about the presence of negative outcomes. They prioritize avoiding potential losses and risks and rely more on logical and rational processes in decision-making and actions (Das, 2015; Higgins et al., 1997). Furthermore, Das's (2015, 2016) research further supports the impact of regulatory focus on impulse buying. A promotion focus has a positive effect on impulse buying because individuals with a promotion focus are more inclined to perceive impulse buying from the perspective of pursuing happiness and fulfillment, viewing it as a way to satisfy personal desires. Conversely, a prevention focus has a negative effect on impulse buying because individuals with a prevention focus pay more attention to potential risks and losses, approach purchase decisions with caution, and consequently reduce the likelihood of impulse buying. Based on these observations, this study proposes the following hypotheses:

H4: Promotion focus positively affects impulse buying.

H5: Prevention focus negatively affects impulse buying.

Moderating effect of social influence

Positive purchasing decision information from others can enhance individuals' promotion focus, leading to impulsive purchasing behavior (Dolan et al., 2019). Furthermore, social influence strengthens the positive relationship between promotion focus and impulse buying (Parsad et al., 2021). On the other hand, negative purchasing decision information can enhance individuals' prevention focus, resulting in cautious purchasing behavior (Dolan et al., 2019). Moreover, social influence strengthens the negative relationship between prevention focus and impulse buying (Parsad et al., 2021). Notably, others' opinions significantly influence individuals' purchasing behavior, particularly through social media, online reviews, and product ratings (Fakhreddin & Foroudi, 2022). Positive evaluations and recommendations from others also play a crucial role in influence individuals' regulatory focus and purchasing decisions (Lin & Wang, 2022). Based on these observations, this study formulates the following hypotheses.

H6a: Social influence can enhance the positive relationship between promotion focus and impulse buying.

H6b: Social influence can strengthen the negative relationship between prevention focus and impulse buying.

Positive reviews and recommendations on social media increase individuals' trust in a product/service (Hanaysha, 2022). This increased trust leads to a reduction in perceived risk, which, in turn, increases impulse buying (Zhang et al., 2022). Social media and online reviews play a crucial role in provide access to others' opinions and experiences, thereby influencing individuals' purchasing decisions (Lin & Wang, 2022). Furthermore, positive reviews and recommendations not only enhance trust but also reduce perceived risk, consequently promoting impulse buying (Bawack et al., 2023). Additionally, purchase displays on social media further reinforce the occurrence of impulse buying (Zhang et al., 2022). Based on these observations, this study formulates the following hypotheses.

H6c: Social influence can decrease the negative relationship between perceived risk and impulse buying.

Research model

This study applies self-regulation theory, linking goal orientations and self-regulatory strategies to behavior (Zimmerman, 1989). Promotion focus represents pursuing gains, while prevention focus signifies avoiding losses (Higgins, 1997). Perceived risk reflects uncertainty and negative outcomes (Shimul et al., 2021). Promotion focus is negatively associated with perceived risk (H1), as gains-focused individuals may overlook risks. Prevention focus positively relates to perceived risk (H2) because loss-avoidant individuals attend to risks. Perceived risk negatively affects impulse buying (H3), as higher risk perception leads to caution. Promotion focus positively predicts impulse buying (H4), driven by gain pursuit. Prevention focus negatively predicts impulse buying (H5), driven by loss avoidance. Social influence moderates these relationships (H6a, H6b, H6c). Figure 1 illustrates the details.

Methodology

Paradigm and Research Method

The purpose of this study is to explore and understand the subjective experiences and perceptions of consumers in the context of mobile commerce. The interpretive paradigm

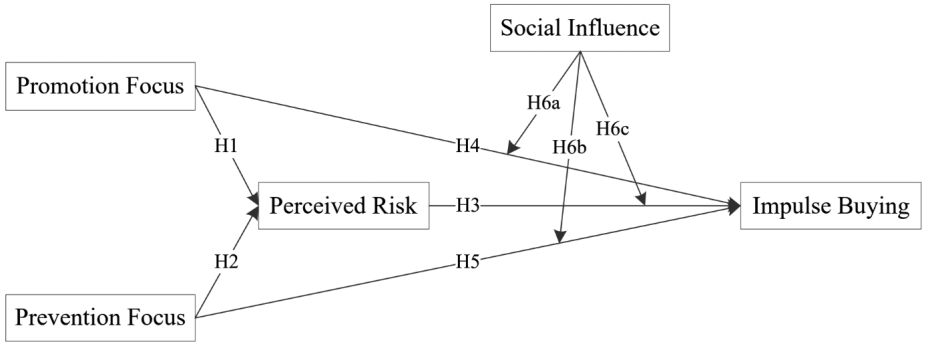

Figure 1 Research model

allows us to delve into the meanings and interpretations individuals attach to their impulse buying behavior, providing valuable insights into the decision-making process. Building on the chosen interpretive paradigm, the research follows quantitative research, such as questionnaire surveys. The research design of this study is cross-sectional, focusing on a single point in time to capture participants' impulse buying behavior and related factors. This design allows us to examine the relationships between regulatory focus, perceived risk, social influence, and impulse buying tendencies concurrently.

Research Design

Considering that the research targets consumer behavior in the context of mobile commerce in China, a convenience sampling method was used to survey consumers who have used mobile commerce for shopping. The questionnaires were distributed through online survey platforms, such as Questionnaire Star, and were distributed to certain group-buying communities, online shopping WeChat groups, online shopping QQ groups, and so on. Using Dillman's (2011) sampling method, the sample size calculation formula is as follows: $n = p(1\text{-}p)/(e^2/z^2+p(1\text{-}p)/N)$, which indicates a minimum requirement of 344 questionnaires to be collected.

A total of 647 survey questionnaires were collected, with 619 valid questionnaires remaining after removing inconsistencies, yielding a 95.67 percent response rate. The sample had a relatively balanced male-to-female ratio, with females accounting for 51.7 percent. Participants were primarily aged between 25 and 45, with the highest proportion (55.4%) in the 25–35 range. Most had an associate degree (43%) or high school degree (30.4%). The majority fell within the income range of 3001–10000 Yuan, with 33.8 percent earning 5001–8000 Yuan. Marital status was predominantly married (53.8%), aligning with age trends. These results are representative and reflect the actual situation.

Measurement

In this study, we selected and adapted several measurement scales from existing literature reviews to assess the concepts in our proposed model. These scales have been used and validated in previous research. The final questionnaire covered aspects such as promotion focus, prevention focus, perceived risk, social influence, and impulse buying tendency. To measure individuals' promotion focus and prevention focus, we utilized a scale proposed by Semin et al. (2005) consisting of eight items. To assess perceived risk, we employed a scale with twelve items developed by Peter and Tarpey (1975). The scale for social influence was adopted from Koenig-Lewis et al. (2015). As for the assessment of impulse buying tendency and impulsive buying behavior, we utilized a scale developed by Parboteeah et al. (2009). A seven-point Likert scale was used to collect responses, where 1 represented "strongly disagree" and 7 represented "strongly agree".

To ensure the accuracy of our questionnaire, we adopted the translation-back-translation procedure proposed by Brislin (1980) to translate the English questionnaire into Chinese. The data for our study were collected from Chinese participants who are native Chinese speakers. Firstly, we entrusted the translation task to a professor specializing in the Chinese language in the School of Foreign Languages, who translated the original English questionnaire into Chinese. Following that, another English professor performed a back-translation, converting the Chinese version back into English. By comparing these two English versions of the questionnaire, we ensured the quality and fidelity of the measurement tools. Additionally, we conducted a pretest to further validate the questionnaire's effectiveness. We distributed the questionnaire to 10 experienced junior and senior researchers, collected their valuable feedback, and made appropriate modifications based on their suggestions.

Analysis Strategy

In terms of data analysis, the Partial Least Squares (PLS) method was employed for this study. PLS method possesses the capability to assess both measurement model parameters and structural path coefficients (Chin, 1998; Park et al., 2012). Compared to other model fitting techniques like LISREL, PLS method emphasizes more on prediction and data analysis, providing explanatory power by maximizing the variance that is explained within the structure (Park et al., 2012). Considering the predictive requirements of this study, PLS was considered as a suitable statistical analysis tool (Park et al., 2012). The data analysis was conducted using SPSS 26 and AMOS 26 for this paper.

Results

Common-Method Bias

To address the potential issue of common method variance (CMV) in our social science survey, particularly with self-report scales, we employed Harman's single-factor test as recommended by Podsakoff et al. (2003) to examine the presence of common method bias (CMB). The analysis involved conducting an unrotated principal component factor analysis and assessing the squared sum of loadings for the first factor. The results showed that this factor accounted for 30.094 percent of the variance, which did not meet the criterion of 50 percent. Hence, we can conclude that there is no significant concern regarding common method variance in our scales.

Analysis of the Measurement Model

In this section, we thoroughly examined the measurement model for validity and reliability, covering all constructs used in the study. The results indicated a strong fit between the assumed model and the dataset, as evidenced by the following fit indices: CMIN/DF = 2.57, GFI = 0.914, IFI = 0.960, CFI = 0.960, TLI = 0.957, RMSEA = 0.044. These values signify that the model aligns well with the observed data, supporting its validity. Loadings of all items, presented in Table 1, were above 0.5 as suggested by Hair et al. (2019), further supporting the reliability of the measurement model. For construct reliability, we used the CR value as it offers a more precise assessment compared to Cronbach's alpha and composite reliability (Henseler et al., 2015). Table 1 demonstrates that all CR values exceed the threshold of 0.7, indicating good construct reliability. Convergent validity was evaluated by examining the average variance extracted (AVE) scores. According to the benchmark established by Fornell and Larcker (1981), an AVE value greater than 0.5 indicates satisfactory convergent validity. In our study, all constructs surpassed this threshold, confirming their strong convergent validity. Overall, the results from the measurement model assessment provide robust evidence for the validity and reliability of our constructs.

Table 1 Loadings, AVE, and reliability results

Variables	Items	Loading	CR	AVE
Promotion focus	1. On mobile commerce platforms, do you usually succeed in purchasing the items or services you try?	0.697	.855	.596
	2. Do you feel that you have made progress towards successful purchases on mobile commerce platforms?	0.786		
	3. When pursuing purchasing goals, do you exhibit strong enthusiasm and dedication?	0.781		
	4. Do you eagerly anticipate a satisfying shopping experience when you expect a successful purchase on mobile commerce?	0.819		
Prevention focus	5. Have you ever purchased items or services on mobile commerce that your friends or family members did not approve of?	0.766	.838	.565
	6. Have you made purchases on mobile commerce in ways that your friends or family members consider undesirable?	0.789		
	7. Have you experienced problems with purchases on mobile commerce due to lack of caution at times?	0.693		
	8. During purchase decision-making, have you found that there were some aspects you did not consider on mobile commerce?	0.755		
Perceived risk	1. When using mobile e-commerce platforms to purchase goods or services, do you worry about the risk of personal privacy leakage?	0.657	.933	.538
	2. Do you worry about payment security issues when buying goods or services on mobile e-commerce platforms?	0.757		
	3. When making purchases on mobile e-commerce platforms, do you worry about the quality or performance of the products not meeting your expectations?	0.747		
	4. Do you worry about the risk of merchant fraud or false advertising when buying goods or services on mobile e-commerce platforms?	0.818		
	5. Do you worry about encountering difficulties or dissatisfaction with after-sales services when making purchases on mobile e-commerce platforms?	0.703		
	6. When using mobile e-commerce platforms to conduct transactions, do you worry about the risk of transaction information being stolen or tampered with?	0.684		

Table 1 Continued

Variables	Items	Loading	CR	AVE
	7. When buying goods or services on mobile e-commerce platforms, do you worry about receiving damaged or misrepresented products?	0.802		
	8. When using mobile e-commerce platforms to make payments, do you worry about not receiving the purchased goods?	0.655		
	9. Do you worry that the shopping experience on mobile e-commerce platforms is not as comfortable and convenient as shopping in physical stores?	0.676		
	10. Do you worry about insufficient or inaccurate product information when buying goods or services on mobile e-commerce platforms?	0.724		
	11. When purchasing goods or services on mobile e-commerce platforms, do you worry about receiving counterfeit or fake branded products?	0.781		
	12. Do you worry about the complexity or obstruction of the return or refund process when buying goods or services on mobile e-commerce platforms?	0.730		
Social Influence	1. People who are important to me may recommend shopping using mobile platforms.	0.808	.774	.534
	2. People who are important to me may suggest that I should shop using mobile platforms.	0.666		
	3. People who are important to me expect me to shop using mobile platforms.	0.711		
Impulse buying	1. I had the urge to purchase items other than or in addition to my specific shopping goal.	0.820	.765	.522
	2. I had a desire to buy items that did not pertain to my specific shopping goal.	0.656		
	3. I had the inclination to purchase items outside my specific shopping goal.	0.682		

To assess discriminant validity, two methods were employed. Firstly, the Fornell-Larcker criterion (Fornell & Larcker, 1981) was applied. As shown in Table 2, the square root of the average variance extracted (AVE) for each construct exceeded the correlation coefficients between the constructs, indicating good discriminant validity. Additionally, the Heterotrait-Monotrait (HTMT) criterion (Henseler et al., 2015) was used. The highest correlation coefficient between any two constructs was 0.47, below the threshold of 0.85 established by Henseler et al. (2015). This further supports the presence of good discriminant validity in our study.

Structural Model

The structural model was primarily employed to test the hypothesized relationships. In this study, we utilized bootstrapping procedures to obtain path estimates and validate the hypotheses. Promotion focus negatively influences perceived risk, confirming H1 (β = -0.229, p < .001). Prevention focus positively influences perceived risk, confirming H2 (β = 0.193, p < .001). Simultaneously, perceived risk negatively influences impulse buying, confirming H3 (β = -0.270, p < .001). On the other hand, promotion focus positively influences impulse buying, confirming H4 (β = 0.253, p < .001). Prevention focus negatively influences impulse buying, confirming H5 (β = -0.188, p < .001).

Furthermore, social influence significantly and positively moderates the relationship between promotion focus and impulse buying, confirming H6a (β = 0.158, p < .01). However, no significant moderating effect of social influence was found between prevention focus and impulse buying, thus H6b is not supported. Conversely, social influence significantly and negatively moderates the relationship between perceived risk and impulse buying, confirming H6c (β = -0.171, p < .01).

Table 2 Correlations between constructs

Variables	*M*	*SD*	PROF	PREF	PERR	SI	IB
Promotion Focus	4.565	0.642	*.77*				
Prevention Focus	5.027	0.734	-.43**	*.75*			
Perceived Risk	4.966	0.794	-.37**	.40**	*.73*		
Social Influence	4.970	0.851	.35**	-.18**	-.22**	*.73*	
Impulse buying	5.007	0.930	.47**	-.39**	-.41**	.33**	.72

Note: PROF (Promotion focus), PREF (Prevention focus), PERR (Perceived risk), SI (Social Influence), IB (Impulse buying).

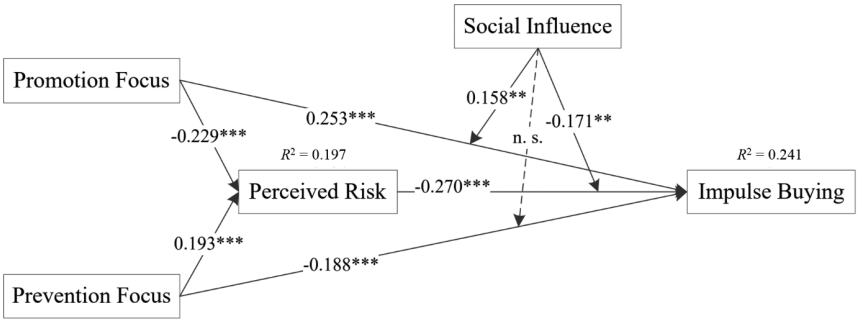

Figure 2 Results of structural model

As shown in Figure 3A, when social influence is high, the positive relationship between promotion focus and impulse buying is stronger compared to when social influence is low. This indicates that social influence has a positive moderating effect on the relationship between promotion focus and impulse buying. As shown in Figure 3B, when social influence is high, the negative relationship between perceived risk and impulse buying is stronger compared to when social influence is low. This indicates that social influence has a negative moderating effect on the relationship between perceived risk and impulse buying.

Discussion

This study examines the mechanisms that lead to impulse buying among consumers in mobile commerce, drawing on the theories of self-regulation, regulatory focus, and consumer impulse buying. We consider regulatory focus and perceived risk as important environmental stimuli influencing consumer choices in mobile commerce. According to the self-regulation theory, individuals' behavior is influenced by goal orientation and self-regulatory strategies. Specifically, promotion focus negatively affects perceived risk (H1), suggesting that individuals focused on pursuing gains may overlook potential risks, thereby reducing perceived risk. Conversely, prevention focus positively affects perceived risk (H2), as individuals focused on avoiding losses are more attentive to potential risks, leading to increased perceived risk. These findings are consistent with previous studies by Lin et al. (2012), and Wang et al. (2019).

Furthermore, perceived risk negatively influences impulse buying (H3), indicating that individuals tend

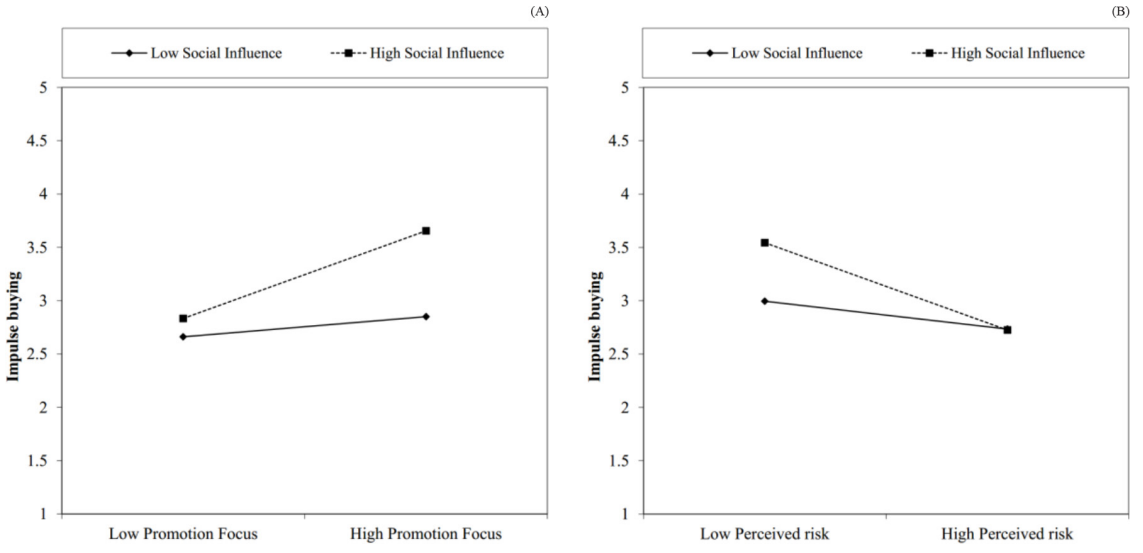

Figure 3 Moderation interaction plot of social influence: (A) Moderation interaction plot of promotion focus, (B) Moderation interaction plot of perceived risk

to adopt a more cautious attitude toward impulsive buying behaviors when they perceive higher levels of risk. These findings align with the research results of Chen, Ha, et al. (2022), Dodoo and Wu (2019), Lavuri et al. (2022), Marakanon and Panjakajornsak (2017), and Pacheco et al. (2022). Additionally, Promotion focus positively influences impulse buying (H4), suggesting that individuals driven by gains are more prone to engaging in impulse buying. Similarly, Prevention focus negatively affects impulse buying (H5), indicating that individuals focused on avoiding losses are more cautious and less likely to engage in impulsive buying behaviors. These findings are consistent with the research results of Das (2015, 2016) and Higgins et al. (1997).

Lastly, social influence enhances the positive relationship between Promotion focus and impulse buying (H6a), but does not significantly moderate the negative relationship between Prevention focus and impulse buying (H6b). Additionally, social influence reduces the negative relationship between perceived risk and impulse buying (H6c). These findings align with the research results of Bawack et al. (2023), Dolan et al. (2019), Fakhreddin and Foroudi (2022), Hanaysha (2022), Higgins (1997), Lin and Wang (2022), Parsad et al. (2021), and Zhang et al. (2022).

Theoretical Contribution

This study contributes to the theoretical understanding of consumer behavior by examining the impact of regulatory focus, perceived risk, and social influence on impulse buying behavior. By proposing and validating hypotheses, the researchers expanded the theoretical knowledge of consumer behavior. Empirical support was found for the relationships between regulatory focus, perceived risk, and impulse buying (H1 to H5). The study also revealed the moderating role of social influence on these relationships (H6a and H6c). These findings offer a new perspective on how the social environment influences impulse buying behavior by affecting regulatory focus and perceived risk. The results suggest that social influence can strengthen the relationships between promotion focus and impulse buying, as well as perceived risk and impulse buying. This study contributes to the theoretical framework of consumer behavior by revealing the impact mechanisms of regulatory focus, perceived risk, and social influence on impulse buying behavior. It provides theoretical foundations and empirical results for further research in related fields.

Managerial Implications

The research provides marketers with valuable insights for designing effective strategies to promote impulse buying. For consumers with a promotion focus, highlighting product features and rewards reduces perceived risks, leading to impulsive decisions (Pacheco, et al., 2022). Emphasizing long-term benefits further stimulates impulse buying. For those with a prevention focus, emphasizing safety measures and clear guarantees builds trust and encourages impulsive buying. Social influence plays a crucial role, and marketers can share positive experiences, offer limited-time deals, and associate products with social groups to drive impulse buying (Dolan et al., 2019). To reduce perceived risk, detailed product information, credibility assurance, and refund policies are essential. Building positive relationships with consumers and addressing their concerns increase trust and decrease perceived risk (Zhang et al., 2022). Implementing these strategies effectively promotes impulse buying behavior.

Limitations and Future Research

Sample and participant limitations may restrict the generalizability of the research findings. To address sample limitations, future studies can consider expanding the sample size to ensure the inclusion of participants from diverse backgrounds and characteristics, thereby better representing the overall population. Regarding participant limitations, research can explore a broader range of individuals, including those of different ages, genders, cultures, and socio-economic backgrounds. This aids in identifying potential variations in research outcomes and establishing generalizability across different populations.

Furthermore, diversity in data collection methods is crucial. Studies can combine quantitative and qualitative data collection methods to obtain more comprehensive information. Using multiple data sources and various data collection tools can enhance the credibility of research results while reducing methodological biases. Additionally, cross-cultural comparative studies can provide a more comprehensive insight, making research findings more generalizable.

In this study, cross-sectional data were used for analysis, but in the future, it may be beneficial to consider longitudinal designs to establish causal relationships and long-term effects. By tracking changes and experiences of participants over time, researchers can gain a better understanding of how one variable influences another

and identify trends and effects over time. This can aid in formulating more targeted intervention measures and policy recommendations.

Conclusion

This study delves into the complex interplay of regulatory focus, perceived risk, and social influence on impulse buying behavior in mobile commerce. Results show that individuals with a promotion focus are more likely to be aware of perceived risk and engage in behavior that leads to impulse buying, driven by the anticipation of advantages and rewards. Prevention focus highlights risk avoidance, impacting impulse buying differently. In contrast, those with a perceived focus tend to emphasize risk avoidance, impacting their impulse buying tendencies differently. Perceived risk plays a crucial role in influencing impulse buying behavior, with higher perceived risk leading to more cautious decisions, while lower perceived risk encourages impulsive behavior. Marketers can capitalize on these findings to facilitate impulse buying by addressing perceived risk through strategies such as providing comprehensive information, establishing credibility, offering guarantees, and implementing customer-friendly refund policies. Furthermore, social influence plays a pivotal role in shaping impulse buying behavior, as it strengthens the positive link between promotion focus and impulse buying while attenuating the negative association between perceived risk and impulse buying.

Overall, this study contributes to a deeper understanding of impulse buying in the context of mobile commerce, offering valuable insights for marketers to optimize their strategies and for consumers to make more informed purchasing decisions.

Conflict of Interest

The authors declare that there is no conflict of interest.

References

Abdelsalam, S., Salim, N., Alias, R. A., & Husain, O. (2020). Understanding online impulse buying behavior in social commerce: A systematic literature review. *IEEE Access*, *8*, 89041–89058. https://doi.org/10.1109/ACCESS.2020.2993671

Barari, M., Ross, M., & Surachartkumtonkun, J. (2020). Negative and positive customer shopping experience in an online context. *Journal of Retailing and Consumer Services*, *53*, 101985. https://doi.org/10.1016/j.jretconser.2019.101985

Bawack, R. E., Bonhoure, E., Kamdjoug, J. R. K., & Giannakis, M. (2023). How social media live streams affect online buyers: A uses and gratifications perspective. *International Journal of Information Management*, *70*, 102621. https://doi.org/10.1016/j.ijinfomgt.2023.102621

Bourg, L., Chatzidimitris, T., Chatzigiannakis, I., Gavalas, D., Giannakopoulou, K., Kasapakis, V., Konstantopoulos, C., Kypriadis, D., Pantziou, G., & Zaroliagis, C. (2021). Enhancing shopping experiences in smart retailing. *Journal of Ambient Intelligence and Humanized Computing*, 1–19. https://doi.org/10.1007/s12652-020-02774-6

Brislin, R.W. (1980). Translation and Content Analysis of Oral and Written Material. In: Triandis, H.C., Berry, J.W. (Eds.), *Handbook of Cross-Cultural Psychology* 2. Allyn & Bacon, Boston, pp. 389–444

Chen, J. V., Ha, Q. A., & Vu, M. T. (2022). The influences of virtual reality shopping characteristics on consumers' impulse buying behavior. *International Journal of Human-Computer Interaction*, 1–19. https://doi.org/10.1080/10447318.2022.2098566

Chen, J. V., Ruangsri, S., Ha, Q. A., & Widjaja, A. E. (2022). An experimental study of consumers' impulse buying behaviour in augmented reality mobile shopping apps. *Behaviour & Information Technology*, *41*(15), 3360–3381. https://doi.org/10.1080/0144929X.2021.1987523

Chin, W. W. (1998). Commentary: Issues and opinion on structural equation modeling. *MIS Quarterly*, *22*(1), 7–16. https://www.jstor.org/stable/249674

Coelho, F., Aniceto, I., Bairrada, C. M., & Silva, P. (2023). Personal values and impulse buying: The mediating role of hedonic shopping motivations. *Journal of Retailing and Consumer Services*, *72*, 103236. https://doi.org/10.1016/j.jretconser.2022.103236

Cuandra, F. (2022). Impulsiveness in online era: The role of utilitarian and hedonic value on impulsiveness and impulse buying behavior of Batam Community. *Inovbiz: Jurnal Inovasi Bisnis*, *10*(1), 89–95. https://doi.org/10.35314/inovbiz.v10i1.2414

Das, G. (2015). Retail shopping behaviour: Understanding the role of regulatory focus theory. *The International Review of Retail, Distribution and Consumer Research*, *25*(4), 431–445. https://doi.org/10.1080/09593969.2015.1017773

Das, G. (2016). Regulatory focus as a moderator of retail shopping behaviour. *Journal of Strategic Marketing*, *24*(6), 484–499. https://doi.org/10.1080/0965254X.2015.1063679

Dillman, D. A. (2011). *Mail and internet surveys: The tailored design method--2007 update with new internet, visual, and mixed-mode guide*. John Wiley & Sons.

Dodoo, N. A., & Wu, L. (2019). Exploring the anteceding impact of personalised social media advertising on online impulse buying tendency. *International Journal of Internet Marketing and Advertising*, *13*(1), 73–95. https://doi.org/10.1504/IJIMA.2019.097905

Dolan, R., Conduit, J., Frethey-Bentham, C., Fahy, J., & Goodman, S. (2019). Social media engagement behavior: A framework for engaging customers through social media content. *European Journal of Marketing*, *53*(10), 2213–2243. https://doi.org/10.1108/EJM-03-2017-0182

Dorina, I., Mullan, B., Boyes, M., & Liddelow, C. (2023). Utility of temporal self-regulation theory in health and social behaviours: A meta-analysis. *British Journal of Health Psychology*, *28*(2), 397–438. https://doi.org/10.1111/bjhp.12631

Fakhreddin, F., & Foroudi, P. (2022). Instagram influencers: The role of opinion leadership in consumers' purchase behavior. *Journal of Promotion Management*, *28*(6), 795–825. https://doi.org/10.1080/10496491.2021.2015515

Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, *18*(1), 39–50. https://doi.org/10.1177/002224378101800104

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Hanaysha, J. R. (2022). Impact of social media marketing features on consumer's purchase decision in the fast-food industry: Brand trust as a mediator. *International Journal of Information Management Data Insights*, *2*(2), 100102. https://doi.org/10.1016/j.jjimei.2022.100102

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Higgins, E. T. (1997). Beyond pleasure and pain. *American psychologist*, *52*(12), 1280. https://doi.org/10.1016/j.jbusres.2021.12.041

Higgins, E. T., Shah, J., & Friedman, R. (1997). Emotional responses to goal attainment: strength of regulatory focus as moderator. *Journal of Personality and Social Psychology, 72*(3), 515–525. https://doi.org/10.1037/0022-3514.72.3.515

Khokhar, A. A., Qureshi, P. A. baker, Murtaza, F., & Kazi, A. G. (2019). The impact of social media on impulse buying behaviour in Hyderabad Sindh Pakistan. *International Journal of Entrepreneurial Research*, *2*(2), 8–12. https://doi.org/10.31580/ijer.v2i2.907

Koenig-Lewis, N., Marquet, M., Palmer, A., Zhao, A. L. (2015). Enjoyment and social influence: Predicting mobile payment adoption. *The Service Industries Journal*, *35*(10), 537–554. https://doi.org/10.1080/02642069.2015.1043278

Lavuri, R., Jindal, A. and Akram, U. (2022), How perceived utilitarian and hedonic value influence online impulse shopping in India? Moderating role of perceived trust and perceived risk. *International Journal of Quality and Service Sciences*, *14*(4), 615–634. https://doi.org/10.1108/IJQSS-11-2021-0169

Lee, W. L., Liu, C. H., & Tseng, T. W. (2022). The multiple effects of service innovation and quality on transitional and electronic word-of-mouth in predicting customer behaviour. *Journal of Retailing and Consumer Services*, *64*, 102791. https://doi.org/10.1016/j.jretconser.2021.102791

Lin, C. T., Chen, C. W., Wang, S. J., & Lin, C. C. (2018). The influence of impulse buying toward consumer loyalty in online shopping: A regulatory focus theory perspective. *Journal of Ambient Intelligence and Humanized Computing*, 1–11. https://doi.org/10.1007/s12652-018-0935-8

Lin, S. C., Tseng, H. T., Shirazi, F., Hajli, N., & Tsai, P. T. (2022). Exploring factors influencing impulse buying in live streaming shopping: a stimulus-organism-response (SOR) perspective. *Asia Pacific Journal of Marketing and Logistics*, *35*(6), 1383–1403. https://doi.org/10.1108/APJML-12-2021-0903

Lin, X., & Wang, X. (2022). Towards a model of social commerce: Improving the effectiveness of e-commerce through leveraging social media tools based on consumers' dual roles. *European Journal of Information Systems*, 1–18. https://doi.org/10.1080/0960085X.2022.2057363

Lin, Y. C., Chang, C. C. A., & Lin, Y. F. (2012). Self-construal and regulatory focus influences on persuasion: The moderating role of perceived risk. *Journal of Business Research*, *65*(8), 1152–1159. https://doi.org/10.1016/j.jbusres.2011.08.001

Marakanon, L., & Panjakajornsak, V. (2017). Perceived quality, perceived risk and customer trust affecting customer loyalty of environmentally friendly electronics products. *Kasetsart Journal of Social Sciences*, *38*(1), 24–30. https://doi.org/10.1016/j.kjss.2016.08.012

Murugananthan, G., & Bhakat, R. S. (2013). A review of impulse buying behavior. *International Journal of Marketing Studies*, *5*(3), 149–160. http://dx.doi.org/10.5539/ijms.v5n3p149

Pacheco, D. C., Moniz, A. I. D. D. S. A., Caldeira, S. N., & Silva, O. D. L. (2022). Online impulse buying-integrative review of psychological factors. *Perspectives and Trends in Education and Technology: Selected Papers from ICITED 2021*, *2*, 527–536. http://doi.org/10.1007/978-981-16-5063-5_44

Parboteeah, D. V., Valacich, J. S., Wells, J. D. (2009). The influence of website characteristics on a consumer's urge to buy impulsively. *Information Systems Research*, *20*(1), 60–78. https://doi.org/10.1287/isre.1070.0157

Park, I., Cho, J., & Rao, H. R. (2012). The effect of pre-and post-service performance on consumer evaluation of online retailers. *Decision Support Systems*, *52*(2), 415–426. https://doi.org/10.1016/j.dss.2011.10.001

Parsad, C., Prashar, S., Vijay, T. S., & Kumar, M. (2021). Do promotion and prevention focus influence impulse buying: The role of mood regulation, shopping values, and impulse buying tendency. *Journal of Retailing and Consumer Services*, *61*, 102554. https://doi.org/10.1016/j.jretconser.2021.102554

Peter, J. P., & Tarpey Sr, L. X. (1975). A comparative analysis of three consumer decision strategies. *Journal of Consumer Research*, *2*(1), 29–37. https://doi.org/10.1086/208613

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Redine, A., Deshpande, S., Jebarajakirthy, C., & Surachartkumtonkun, J. (2023). Impulse buying: A systematic literature review and future research directions. *International Journal of Consumer Studies*, *47*(1), 3–41. https://doi.org/10.1111/ijcs.12862

Rosário, A., & Raimundo, R. (2021). Consumer marketing strategy and E-commerce in the last decade: A literature review. *Journal of Theoretical and Applied Electronic Commerce Research*, *16*(7), 3003–3024. https://doi.org/10.3390/jtaer16070164

Semin, G. R., Higgins, T., de Montes, L. G., Estourget, Y., & Valencia, J. F. (2005). Linguistic signatures of regulatory focus: How abstraction fits promotion more than prevention. *Journal of Personality and Social Psychology*, *89*(1), 36–45. https://doi.org/10.1037/0022-3514.89.1.36

Shi, H., Ma, P., Zeng, Y., & Sheng, J. (2022). Understanding the interaction between regulatory focus and message framing in determining Chinese consumers' attitudes toward artificial meat. *International Journal of Environmental Research and Public Health*, *19*(9), 4948. https://doi.org/10.3390/ijerph19094948

Shimul, A. S., Cheah, I., & Lou, A. J. (2021). Regulatory focus and junk food avoidance: The influence of health consciousness, perceived risk and message framing. *Appetite*, *166*(1), 105428. https://doi.org/10.1016/j.appet.2021.105428

Sit, K. J., Ballantyne, E. E., & Gorst, J. (2022). Profiling shoppers' coping behaviours during a pandemic crisis: A regulatory focus perspective. *Journal of Retailing and Consumer Services*, *64*, 102811. https://doi.org/10.1016/j.jretconser.2021.102811

Um, T., Chung, N., & Stienmetz, J. (2023). Factors affecting consumers' impulsive buying behavior in tourism mobile commerce using SEM and fsQCA. *Journal of Vacation Marketing*, *29*(2), 256–274. https://doi.org/10.1177/13567667221090991

Wang, S., Wang, J., Lin, S., & Li, J. (2019). Public perceptions and acceptance of nuclear energy in China: The role of public knowledge, perceived benefit, perceived risk and public engagement. *Energy Policy*, *126*, 352–360. https://doi.org/10.1016/j.enpol.2018.11.040

Zhang, M., Xu, P., & Ye, Y. (2022). Trust in social media brands and perceived media values: A survey study in China. *Computers in Human Behavior*, *127*, 107024. https://doi.org/10.1016/j.chb.2021.107024

Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology*, *81*(3), 329–339. https://doi.org/10.1037/0022-0663.81.3.329