







“Perceived ease of use and perceived usefulness as drivers of compulsive digital banking behavior: The mediating role of impulsive usage”

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PERCEIVED EASE OF USE AND PERCEIVED USEFULNESS AS DRIVERS OF COMPULSIVE DIGITAL BANKING BEHAVIOR: THE MEDIATING ROLE OF IMPULSIVE USAGE

Abstract

The rapid expansion of digital banking services has increased concerns regarding excessive and uncontrolled user behavior, particularly impulsive and compulsive usage patterns. This study aims to examine the effect of perceived ease of use (PEU) and perceived usefulness (PU) on compulsive digital banking behavior, with impulsive usage (IU) as a mediating mechanism. A quantitative approach was employed using a survey of 348 active users of digital banking applications, specifically Bank Jago and Allo Bank, selected through purposive sampling based on their experience in digital financial transactions. Data were collected online between April and June 2025 to reflect current digital banking behavior. The results show that PEU ($\beta = 0.511, p < 0.001$) and PU ($\beta = 0.523, p < 0.001$) significantly influence impulsive usage. Furthermore, PEU ($\beta = 0.187, p < 0.001$) and PU ($\beta = 0.511, p < 0.001$) have significant direct effects on compulsive usage, while impulsive usage also has a positive but relatively small effect on compulsive usage ($\beta = 0.140, p = 0.021$). These findings indicate that perceived usefulness plays a more dominant role in driving compulsive behavior compared to perceived ease of use. The study highlights that while digital banking systems enhance efficiency and user engagement, they may also increase behavioral intensity and potential risks related to excessive usage. Therefore, digital banking providers should integrate system performance with responsible design strategies, such as behavioral control mechanisms, to support sustainable financial behavior.

Keywords ease, usefulness, impulsivity, compulsivity, banking

JEL Classification G21, M31, O33

INTRODUCTION

The banking industry is undergoing rapid transformation driven by digitalization and increasing competition. Digital banking services provide fast, efficient, and user-friendly solutions that meet consumers' growing demand for accessibility and convenience (Windasari et al., 2022). However, these advancements also introduce emerging risks within digital banking systems, particularly the emergence of impulsive and compulsive usage patterns in digital financial environments. These behaviors reflect a shift from rational decision-making toward more spontaneous and emotionally driven interactions, raising concerns about users' financial control, financial discipline, and the potential for unsustainable financial behavior within digital banking ecosystems (Djamhari et al., 2024).

In digital financial contexts, impulsive behavior often occurs when users engage in unplanned transactions triggered by system features such as instant access, seamless interfaces, and promotional stimuli.

Over time, such behavior may evolve into compulsive usage, characterized by repetitive and difficult-to-control interactions with digital platforms. The integration of real-time services, personalized recommendations, and engaging interface designs can intensify user engagement while reducing cognitive control, potentially reinforcing excessive usage patterns (Matar & Aloqaily, 2025). This creates a paradox in digital banking: while it enhances efficiency and accessibility, it may also increase the risk of behavioral overuse and dependency, which may further lead to reduced financial control and increased vulnerability to financial mismanagement at the individual level.

This issue becomes more critical in rapidly expanding digital financial ecosystems, where technological innovation continuously shapes consumer behavior. The increasing reliance on digital banking services reflects not only a shift in financial practices but also a transformation in how users interact with financial technologies. From a banking system perspective, such behavioral patterns may have broader implications, including potential risks related to customer financial well-being, transaction intensity, and the sustainability of digital financial services. As digital platforms become more embedded in everyday financial activities, understanding the behavioral consequences of intensive usage becomes increasingly important.

However, despite the growing importance of digital banking in everyday financial activities, limited attention has been given to the behavioral risks associated with its intensive usage. In particular, the role of technological convenience in shaping users' behavioral control and contributing to impulsive and compulsive usage remains insufficiently understood. This indicates a critical gap in explaining how cognitive perceptions in digital banking environments may lead to excessive and potentially uncontrolled financial behavior, especially in rapidly expanding digital financial ecosystems.

1. LITERATURE REVIEW AND HYPOTHESES

The rapid development of digital technologies has significantly transformed consumer behavior, particularly in financial service contexts. Consumer behavior theory explains how individuals allocate resources such as time, effort, and money in response to internal and external stimuli that shape decision-making processes (Kotler et al., 2021; Schiffman & Wisenblit, 2019). In digital environments, these processes are increasingly influenced by technological features that enhance accessibility, speed, and interactivity, leading to more immediate and experience-driven consumption patterns (Chaffey & Ellis-Chadwick, 2022; Wirtz & Lovelock, 2021).

The integration of real-time systems, personalization, and seamless interfaces has accelerated decision-making while reducing cognitive effort. As a result, digital platforms facilitate interactions that are not only efficient but also emotionally engaging. Such environments are associated with more spontaneous and less deliberative behaviors, as users are continuously exposed to stimuli and

instant responses (Djamhari et al., 2024; Khan & Dhar, 2006; Lee et al., 2023). This suggests that technological convenience not only enhances user experience but also increases behavioral vulnerability by reducing reflective decision-making processes.

Impulsive usage represents spontaneous and emotion-driven interactions that occur without prior planning or cognitive evaluation. These behaviors are often triggered by system features such as promotional cues, accessibility, and interface design, which lower decision-making barriers (Li & Deng, 2026; Lisnawati et al., 2023). Emotional engagement and instant feedback mechanisms are associated with increased impulsive usage, as they reduce cognitive control and encourage immediate responses (Djamhari et al., 2024; Hurriyati et al., 2023). Repeated impulsive interactions may gradually develop into more persistent behavioral patterns, indicating a transition toward compulsive usage.

Compulsive usage reflects excessive, repetitive, and difficult-to-control engagement with digital platforms, often driven by psychological dependency and emotional reinforcement. Habitual in-

teraction, emotional attachment, and continuous system exposure are considered key factors contributing to compulsive usage by reinforcing repetitive behavior and reducing behavioral control (Dang et al., 2025; Mason et al., 2022). In digital financial contexts, this behavior may manifest as persistent system use despite awareness of negative consequences. Impulsive and compulsive behaviors are conceptually interconnected, where repeated spontaneous actions can evolve into more entrenched behavioral patterns.

From a technological perspective, the Technology Acceptance Model (TAM) provides a foundational framework for understanding user interaction with digital systems. Perceived ease of use and perceived usefulness are widely recognized as key determinants of technology adoption and continued usage (Alalwan, 2018; Davis, 1989; B. Ly & R. Ly, 2022). In digital banking contexts, these cognitive perceptions are associated with higher levels of user engagement and interaction intensity (Alalwan, 2018; Kelly & Palaniappan, 2023; Pikkarainen et al., 2004; Thakur & Srivastava, 2014; Underdown & Tamara, 2025; Waleed Rababa et al., 2025). When systems are perceived as easy to use, users tend to interact with minimal cognitive effort, increasing the likelihood of spontaneous and impulsive usage. Similarly, perceived usefulness reinforces the perceived value of digital banking services, which can justify frequent and immediate usage.

Recent developments in fintech highlight a paradoxical effect of technological advancement. While digital banking services improve efficiency and accessibility, they also introduce behavioral risks associated with excessive usage and dependency. Personalization, artificial intelligence, and continuous system interaction are linked to increased user engagement and behavioral intensity (Frolov et al., 2024; Khaddam & Alhanatleh, 2024). Continuous exposure to systems that are both easy to use and functionally beneficial may reinforce repeated interaction patterns, which over time can develop into habitual and eventually compulsive usage.

Despite extensive research on digital banking adoption, prior studies have predominantly emphasized cognitive determinants such as perceived ease of use and perceived usefulness, with prima-

ry focus on intention and satisfaction outcomes (Underdown & Tamara, 2025; Waleed Rababa et al., 2025). Limited attention has been given to behavioral consequences that emerge after adoption, particularly those related to excessive and uncontrolled usage (Frolov et al., 2024; Ong & Lin, 2016). As a result, the mechanisms through which cognitive perceptions influence behavioral control remain insufficiently explored, especially in relation to the role of impulsive usage as a connecting mechanism.

The literature indicates that digital banking behavior is shaped by the interaction between technological convenience, cognitive perceptions, and emotional responses. However, existing discussions have not sufficiently explained how these cognitive drivers contribute to excessive and uncontrolled behavioral outcomes, such as impulsive and compulsive usage, as a potential behavioral risk within digital banking systems. This limitation highlights a critical gap in integrating technology acceptance perspectives with behavioral consumption theories to better understand post-adoption digital banking behavior and its implications for financial control. Based on this gap, this study aims to examine the effect of perceived ease of use and perceived usefulness on compulsive digital banking behavior, with impulsive usage acting as a mediating variable. The relationships among these variables are illustrated in Figure 1, which presents the proposed conceptual model of this study.

This study aims to examine the effects of perceived ease of use and perceived usefulness on compulsive usage behavior in digital banking applications and to investigate the mediating role of impulsive usage in these relationships.

Study hypotheses are as follows:

- H1: *Perceived ease of use has a direct and significant influence on impulsive usage of digital banking applications.*
- H2: *Perceived usefulness has a direct and significant influence on impulsive usage of digital banking applications.*
- H3: *Perceived ease of use has a direct and significant influence on compulsive usage of digital banking applications.*

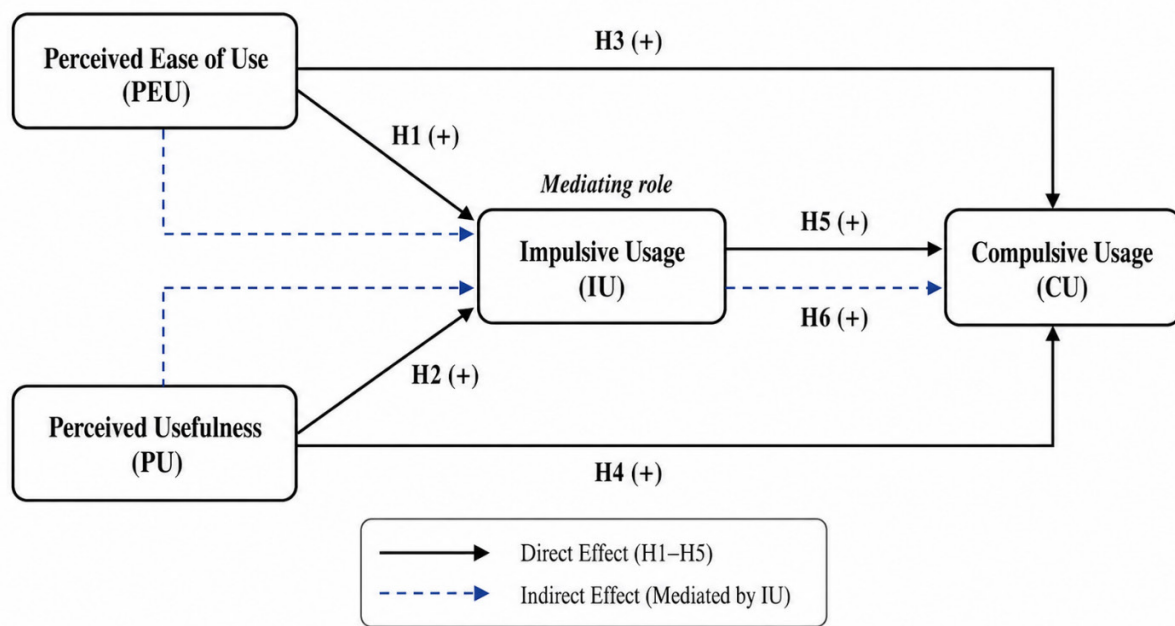


Figure 1. Research paradigm

- H4: Perceived usefulness has a direct and significant influence on compulsive usage of digital banking applications.
- H5: Impulsive usage has a direct and significant influence on compulsive usage of digital banking applications.
- H6: Impulsive usage has a mediating effect on the relationship between perceived ease of use, perceived usefulness, and compulsive usage of digital banking applications.

2. METHODS

This study employed a quantitative research design to examine the relationships among perceived ease of use, perceived usefulness, impulsive usage, and compulsive usage in digital banking contexts. Primary data were collected through a structured questionnaire distributed online to individuals in Indonesia who actively use digital banking applications. Data collection was conducted between April and June 2025, reflecting a period of intensive digital banking adoption and transaction activity in Indonesia.

A purposive sampling technique was applied to ensure that respondents met specific criteria, in-

cluding having an active digital banking account and prior experience in conducting digital financial transactions. A total of 348 valid responses were obtained from users of digital banking services such as Bank Jago and Allo Bank, which satisfies the recommended sample size for Structural Equation Modeling (SEM) analysis (Hair et al., 2013).

As shown in Table 1, the sample is characterized by a relatively balanced gender distribution, a predominance of respondents aged 21-30 years, and frequent use of digital banking applications, indicating substantial familiarity with digital banking services.

The research procedure was conducted in several stages. First, the questionnaire was developed based on established theoretical constructs and adapted from validated measurement scales in prior studies. The measurement items were selected based on their theoretical relevance and prior empirical validation in studies related to digital banking and consumer behavior, ensuring their suitability for capturing both cognitive perceptions and behavioral tendencies. Second, the instrument was distributed online to respondents who met the sampling criteria. Third, the collected data were screened and validated to ensure com-

Table 1. Respondent profile (N = 348)

Source: Data processing results (2025).

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	159	45.7
	Female	189	54.3
Age	< 21 years	42	12.1
	21-30 years	170	48.9
	31-40 years	96	27.6
	> 40 years	40	11.4
Digital Banking Usage Frequency	Daily	219	62.8
	Several times a week	84	24.1
	Occasionally	45	13.1

pleteness and consistency. Finally, the data were analyzed using Structural Equation Modeling to test the proposed hypotheses.

All measurement items were assessed using a five-point Likert scale ranging from strongly disagree to strongly agree. To ensure the adequacy of the

measurement model, construct validity and reliability were evaluated using confirmatory factor analysis within the Structural Equation Modeling framework. Convergent validity was assessed based on standardized factor loadings and average variance extracted, with a recommended threshold of 0.50, while internal consistency was

Table 2. Validity and reliability of research instruments

Source: Data processing results (2025).

Variable	Indicator	Loading Factor	Cronbach's Alpha	Assessment
Perceived Ease of Use (X1)	X1.1	0.626	0.640	Valid and Reliable
	X1.2	0.601		
	X1.3	0.593		
	X1.4	0.456		
	X1.5	0.566		
	X1.6	0.482		
	X1.7	0.485		
	X1.8	0.503		
Perceived Usefulness (X2)	X2.1	0.764	0.884	Valid and Reliable
	X2.2	0.841		
	X2.3	0.832		
	X2.4	0.767		
	X2.5	0.873		
	X2.6	0.637		
Impulsive Usage (Y1)	X2.7	0.651	0.885	Valid and Reliable
	Y1.1	0.851		
	Y1.2	0.838		
	Y1.3	0.894		
	Y1.4	0.625		
	Y1.5	0.647		
	Y1.6	0.811		
Compulsive Usage (Y2)	Y1.7	0.713	0.899	Valid and Reliable
	Y2.1	0.663		
	Y2.2	0.823		
	Y2.3	0.587		
	Y2.4	0.698		
	Y2.5	0.902		
	Y2.6	0.734		
	Y2.7	0.840		
	Y2.8	0.788		
	Y2.9	0.781		
Y2.10	0.454			

evaluated using Cronbach’s Alpha and composite reliability (Fornell & Larcker, 1981; Hair et al., 2013). The measurement model was evaluated prior to the structural model analysis to ensure the adequacy of the constructs used in this study. The results of the validity and reliability assessment demonstrate that all constructs meet acceptable thresholds, indicating that the measurement model is appropriate for further analysis. Table 2 presents the detailed results of construct validity and reliability.

Data analysis was conducted using covariance-based Structural Equation Modeling (CB-SEM) with AMOS version 24. This approach is appropriate for theory testing and model confirmation, as it enables simultaneous estimation of measurement and structural models while accounting for measurement error. Model fit was evaluated using multiple goodness-of-fit indices, including Chi-square/df, RMSEA, GFI, AGFI, CFI, and TLI, to ensure an acceptable level of model adequacy (Dash & Paul, 2021; Hair et al., 2013).

All participants were informed about the purpose of the study prior to participation and provided informed consent. Respondent anonymity was strictly maintained, and no personally identifiable information was collected. Participation was entirely voluntary, and respondents were free to withdraw at any stage. The dataset used in this study is original and has not been used in any

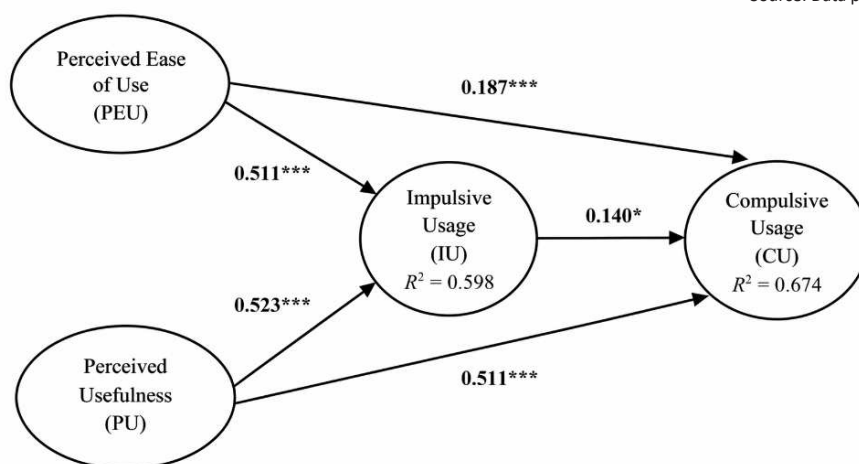
prior publication. The questionnaire used in this study is available upon request from the author.

3. RESULTS

The results of the structural model evaluation are presented in this section. Prior to hypothesis testing, the overall model fit was assessed to ensure that the proposed model adequately represented the observed data. Figure 2 presents the structural model illustrating the relationships among perceived ease of use (PEU), perceived usefulness (PU), impulsive usage (IU), and compulsive usage (CU), along with standardized estimates after the Goodness of Fit (GoF) test. The model demonstrates an excellent fit, as indicated by the goodness-of-fit indices ($\chi^2/df = 1.359$; RMSEA = 0.032; GFI = 0.973; AGFI = 0.950; TLI = 0.981; CFI = 0.988), all of which meet the recommended threshold values. These results indicate that the proposed model is appropriate for structural analysis and hypothesis testing.

Table 3 presents the results of the structural model analysis. Perceived ease of use (PEU) has a positive and significant effect on impulsive usage (IU) ($\beta = 0.511$, C.R. = 9.933, $p < 0.001$), supporting *H1*. Likewise, perceived usefulness (PU) positively influences impulsive usage ($\beta = 0.523$, C.R. = 8.196, $p < 0.001$), supporting *H2*. The results further indicate that perceived ease of use significantly affects

Source: Data processing results (2025).



Note: Df = 43; Chi-square = 58.441; RMSEA = 0.032; CMIN/DF = 1.359; GFI = 0.973; AGFI = 0.950; TLI = 0.981; CFI = 0.988; PGFI = 0.536; PNFI = 0.623.

Figure 2. Structural model

Table 3. Full model analysis

Source: Data processing results (2025).

Model			Estimate		S.E.	C.R.	P
			RW	SRW			
IU	←	PEU	0.500	0.511	0.111	9.933	***
IU	←	PU	0.310	0.523	0.231	8.196	***
CU	←	PEU	2.039	0.591	0.187	7.933	***
CU	←	PU	1.807	0.549	0.511	6.196	***
CU	←	IU	2.635	0.981	0.140	4.311	.021
EL	←	PEU	1.000	0.663			
F	←	PEU	1.084	0.717	0.125	8.672	***
CL	←	PEU	0.863	0.829	0.100	8.629	***
FIT	←	IU	1.000	0.639			
UX	←	IU	1.009	0.747	0.094	10.750	***
ES	←	IU	0.707	0.822	0.074	9.562	***
IE	←	PU	1.000	0.806			
TQ	←	PU	0.681	0.838	0.072	9.510	***
R	←	PU	0.659	0.554	0.068	9.697	***
FA	←	CU	1.000	0.648			
EA	←	CU	0.513	0.797	0.052	9.912	***
FU	←	CU	0.633	0.539	0.057	11.184	***

Note: RW = Unstandardized Regression Weight; SRW = Standardized Regression Weight; S.E. = Standard Error; C.R. = Critical Ratio; *** indicates $p < 0.001$.

compulsive usage (CU) ($\beta = 0.187$, C.R. = 7.933, $p < 0.001$), supporting H3. Similarly, perceived usefulness exerts a positive and significant influence on compulsive usage ($\beta = 0.511$, C.R. = 6.196, $p < 0.001$), supporting H4. Furthermore, impulsive usage has a positive and significant effect on compulsive usage ($\beta = 0.140$, C.R. = 4.311, $p = 0.021$), supporting H5. These findings indicate that all direct-effect hypotheses (H1-H5) are supported.

Table 4. Indirect effects analysis

Source: Data processing results (2025).

Relationship	Path Coefficients	Indirect Effect (β)
PEU → IU → CU	0.511×0.140	0.072
PU → IU → CU	0.523×0.140	0.073
Total Indirect Effect	–	0.145

Table 4 presents the indirect effects of perceived ease of use (PEU) and perceived usefulness (PU) on compulsive usage (CU) through impulsive usage (IU). The indirect effect of PEU on CU through IU was 0.072, while the indirect effect of PU on CU through IU was 0.073. The total indirect effect was 0.145, indicating that impulsive usage serves as a mediating mechanism linking cognitive perceptions of digital banking applications to compulsive usage behavior.

4. DISCUSSION

The findings of this study demonstrate that perceived ease of use (PEU) and perceived usefulness (PU) significantly influence impulsive usage (IU), indicating that users are more likely to engage in spontaneous interactions when digital banking systems are perceived as accessible and beneficial. This result is consistent with prior studies in digital and fintech contexts, which show that reduced cognitive effort and increased perceived value accelerate user responses and encourage impulsive behavior (Alalwan, 2018; Budiyanoto et al., 2025; Lee et al., 2022; Zhao & Khaliq, 2024). However, while previous research has primarily emphasized positive outcomes such as adoption and satisfaction, the present study extends these findings by demonstrating that the same cognitive factors may also stimulate impulsive behavioral responses, highlighting a dual role of TAM constructs in both facilitating usage and increasing behavioral vulnerability.

Furthermore, the results indicate that perceived usefulness has a stronger direct effect on compulsive usage (CU) compared to perceived ease of use. This finding supports prior research suggesting that functional value and performance

expectancy are key drivers of repeated and intensive usage behavior in digital services (Ma et al., 2024; Venkatesh et al., 2012). At the same time, this study extends existing literature by showing that perceived usefulness not only encourages continued usage but may also contribute to excessive behavioral patterns. In contrast, the relatively weaker effect of perceived ease of use suggests that simplicity alone is insufficient to drive compulsive behavior without perceived benefits.

Moreover, impulsive usage is found to have a significant but relatively small effect on compulsive usage, suggesting that the transition from spontaneous to compulsive behavior is not as strong as commonly assumed in consumer behavior literature. While prior studies often propose a direct progression from impulsive to compulsive behavior, the present findings indicate a more complex relationship, where impulsive tendencies contribute to compulsive usage but do not act as the primary driver. This result is consistent with research highlighting the role of additional psychological factors, such as self-control and emotional regulation, in shaping excessive behavior (Balcerowska & Brailovskaia, 2024; Kuss & Griffiths, 2011; Mamun et al., 2025), thereby refining the understanding of behavioral mechanisms in digital contexts.

Another important finding is that perceived ease of use and perceived usefulness also have direct effects on compulsive usage, indicating that compulsive behavior may emerge not only through impulsive mechanisms but also directly from cognitive evaluations of digital systems. This supports prior research suggesting that continuous exposure to efficient and rewarding digital envi-

ronments reinforces habitual and repetitive usage patterns (Addae et al., 2025; Huang & Rust, 2021; Yuan et al., 2025). In the context of digital banking, this implies that system efficiency and functional benefits can unintentionally encourage excessive usage, even in the absence of strong impulsive tendencies.

From a theoretical perspective, these findings extend the Technology Acceptance Model (TAM) by incorporating post-adoption behavioral outcomes, particularly impulsive and compulsive usage. While prior studies have largely focused on positive outcomes such as intention, satisfaction, and continued usage (Dwivedi et al., 2021; Förster, 2024), this study highlights the potential unintended consequences of technology acceptance. This contributes to the literature by integrating cognitive and behavioral perspectives, offering a more comprehensive understanding of how digital technologies influence not only adoption but also behavioral control.

From a practical perspective, the findings suggest that digital banking providers need to balance system performance with responsible design considerations. While improving usability and functionality enhances user engagement, it may also increase the risk of excessive and uncontrolled usage behavior. Therefore, financial institutions should consider implementing behavioral control mechanisms, such as usage monitoring, transaction alerts, and digital nudges, to encourage more responsible financial behavior. This aligns with recent research emphasizing the importance of integrating performance with user well-being in digital services (Giang et al., 2024; Kumar et al., 2019).

CONCLUSION

This study examined the effects of perceived ease of use and perceived usefulness on compulsive digital banking behavior, with impulsive usage acting as a mediating mechanism. The results indicate that both perceived ease of use and perceived usefulness have significant positive effects on impulsive usage ($\beta = 0.511$; $\beta = 0.523$) and compulsive usage ($\beta = 0.187$; $\beta = 0.511$). In addition, impulsive usage has a positive but relatively small effect on compulsive usage ($\beta = 0.140$), indicating that its contribution is present but limited.

These findings suggest that perceived usefulness plays a more dominant role than perceived ease of use in driving compulsive digital banking behavior. This implies that users are more likely to engage in repeated and intensive usage due to the functional value obtained from digital banking services rather than merely the ease of interaction.

From a broader perspective, the results indicate that cognitive evaluations of digital banking systems may not only enhance efficiency and user engagement but also contribute to increased behavioral intensity, which may pose potential risks to users' financial control. Therefore, digital banking providers should consider integrating system performance with responsible design strategies, such as usage monitoring and behavioral control mechanisms, to promote more sustainable user behavior.

Future research is encouraged to incorporate additional variables, such as self-control, financial literacy, and emotional regulation, to provide a more comprehensive understanding of compulsive usage behavior. Furthermore, longitudinal and experimental approaches are recommended to better capture causal relationships and behavioral changes over time in digital financial environments.

AUTHOR CONTRIBUTION

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REFERENCES

1. Addae, J. A., Ahmed, S., Ofori, K. S., Abubakari, A., & Sharma, A. (2025). Understanding users' continuance adoption of FinTechs through the lens of the behavioural reasoning theory: insights from PLS-SEM and fs-QCA. *Behaviour & Information Technology*, 45(8), 1696-1726. <https://doi.org/10.1080/0144929X.2025.2558199>
2. Alalwan, A. A. (2018). Investigating the impact of social media advertising features on customer purchase intention. *International Journal of Information Management*, 42, 65-77. <https://doi.org/10.1016/j.ijinfomgt.2018.06.001>
3. Balcerowska, J. M., & Brailovskaia, J. (2024). Psychopathological symptoms and social networking sites addiction in Poland and Germany: The role of fear of missing out and preference for online social interaction. *Computers in Human Behavior*, 156, 108240. <https://doi.org/10.1016/j.chb.2024.108240>
4. Budiyanto, A., Lubis, I., Bali Pamungkas, I., & Erlan Maulana, A. (2025). Technology acceptance model, trust, and financial behavior in shaping consumer well-being: Insights from fintech adoption in urban Indonesia. *Innovative Marketing*, 21(2), 197-210. [https://doi.org/10.21511/im.21\(2\).2025.16](https://doi.org/10.21511/im.21(2).2025.16)
5. Chaffey, D., & Ellis-Chadwick, F. (2022). *Digital Marketing*. Pearson. Retrieved from <https://sinhvien.dinhvien.net/wp-content/uploads/2025/01/Dave-Chaffey-Fiona-Ellis-Chadwick-Digital-Marketing-2022-Pearson.pdf>

6. Dang, T.-Q., Nguyen, L.-T., & Duc, D. T. V. (2025). Impulsive Buying and Compulsive Buying in Social Commerce: An Integrated Analysis using the Cognitive-Affective-Behavior Model and Theory of Consumption Values with PLS-SEM. *Sage Open*, 15(2). <https://doi.org/10.1177/21582440251334215>
7. Dash, G., & Paul, J. (2021). CB-SEM vs PLS-SEM methods for research in social sciences and technology forecasting. *Technological Forecasting and Social Change*, 173, 121092. <https://doi.org/10.1016/j.techfore.2021.121092>
8. Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), 139-340. <https://doi.org/10.2307/249008>
9. Djamhari, S. I., Mustika, M. D., Sjabadhyni, B., & Ndaru, A. R. P. (2024). Impulsive buying in the digital age: investigating the dynamics of sales promotion, FOMO, and digital payment methods. *Cogent Business & Management*, 11(1). <https://doi.org/10.1080/23311975.2024.2419484>
10. Dwivedi, Y. K., Hughes, L., Ismailova, E., Aarts, G., Coombs, C., Crick, T., Duan, Y., Dwivedi, R., Edwards, J., Eirug, A., Galanos, V., Ilavarasan, P. V., Janssen, M., Jones, P., Kar, A. K., Kizgin, H., Krone-mann, B., Lal, B., Lucini, B., ... & Williams, M. D. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, 57, 101994. <https://doi.org/10.1016/j.ijinfomgt.2019.08.002>
11. 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>
12. Förster, K. (2024). Extending the technology acceptance model and empirically testing the conceptualised consumer goods acceptance model. *Heliyon*, 10(6), e27823. <https://doi.org/10.1016/j.heliyon.2024.e27823>
13. Frolov, S., Ivashenko, M., Dykha, M., Shalyhina, I., Hrabar, V., & Fenyves, V. (2024). Interaction between decentralized financial services and the traditional banking system: A comparative analysis. *Banks and Bank Systems*, 19(2), 53-74. [https://doi.org/10.21511/bbs.19\(2\).2024.05](https://doi.org/10.21511/bbs.19(2).2024.05)
14. Giang, H. T. T., Dung, L. T., Tien, H. T., & Nhu, C. T. B. (2024). Customer empowerment and engagement on sharing platform in the retailing sector: testing the mediating effects of service innovation and platform trust. *Journal of Innovation and Entrepreneurship*, 13(1), 68. <https://doi.org/10.1186/s13731-024-00431-2>
15. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2013). *Multivariate Data Analysis*. Pearson Education Limited. Retrieved from <https://www.drnishikantjha.com/papersCollection/Multivariate%20Data%20Analysis.pdf>
16. Huang, M.-H., & Rust, R. T. (2021). Engaged to a Robot? The Role of AI in Service. *Journal of Service Research*, 24(1), 30-41. <https://doi.org/10.1177/1094670520902266>
17. Hurriyati, R., Dagustani, D., Surachim, A., Sulastri, S., & Lisnawati, L. (2023). Triple-Layered Business Model Canvas Environment Based in the Fashion Industry. *Journal of Human, Earth, and Future*, 4(4), 411-423. <https://doi.org/10.28991/HEF-2023-04-04-03>
18. Kelly, A. E., & Palaniappan, S. (2023). Using a technology acceptance model to determine factors influencing continued usage of mobile money service transactions in Ghana. *Journal of Innovation and Entrepreneurship*, 12(1), 34. <https://doi.org/10.1186/s13731-023-00301-3>
19. Khaddam, A., & Alhanatleh, H. (2024). Role of artificial intelligence and BIG DATA capabilities on fintech services: Value co-creation theory. *Innovative Marketing*, 20(4), 219-233. [https://doi.org/10.21511/im.20\(4\).2024.19](https://doi.org/10.21511/im.20(4).2024.19)
20. Khan, U., & Dhar, R. (2006). Licensing Effect in Consumer Choice. *Journal of Marketing Research*, 43(2), 259-266. <https://doi.org/10.1509/jmkr.43.2.259>
21. Kotler, P., Keller, K. L., & Chernev, A. (2021). *Marketing Management, Global Edition*. Pearson Deutschland. Retrieved from <https://www.pearson.de/marketing-management-ebook-global-edition-9781292405100>
22. Kumar, V., Rajan, B., Gupta, S., & Pozza, I. D. (2019). Customer engagement in service. *Journal of the Academy of Marketing Science*, 47(1), 138-160. <https://doi.org/10.1007/s11747-017-0565-2>
23. Kuss, D. J., & Griffiths, M. D. (2011). Online Social Networking and Addiction – A Review of the Psychological Literature. *International Journal of Environmental Research and Public Health*, 8(9), 3528-3552. <https://doi.org/10.3390/ijerph8093528>
24. Lee, Y. Y., Gan, C. L., & Liew, T. W. (2022). The Impacts of Mobile Wallet App Characteristics on Online Impulse Buying: A Moderated Mediation Model. *Human Behavior and Emerging Technologies*, 2022, 1-15. <https://doi.org/10.1155/2022/2767735>
25. Lee, Y. Y., Gan, C. L., & Liew, T. W. (2023). Do E-wallets trigger impulse purchases? An analysis of Malaysian Gen-Y and Gen-Z consumers. *Journal of Marketing Analytics*, 11(2), 244-261. <https://doi.org/10.1057/s41270-022-00164-9>
26. Li, M., & Deng, R. (2026). Consumer impulse buying behavior in the evolving marketplace: An integrated quantitative and qualitative approach. *Journal of Retailing and Consumer Services*, 89, 104586. <https://doi.org/10.1016/j.jretconser.2025.104586>
27. Lisnawati, L., Hurriyati, R., Disman, D., Gaffar, V., & Firdaus, E. (2023). Omnichannel quality: the new imperative of purchase intention among fashion retail market. *Journal of Eastern European and Central Asian Research (JEE-CAR)*, 10(6), 829-839. <https://doi.org/10.15549/jeecar.v10i6.1504>

28. Ly, B., & Ly, R. (2022). Internet banking adoption under Technology Acceptance Model – Evidence from Cambodian users. *Computers in Human Behavior Reports*, 7, 100224. <https://doi.org/10.1016/j.chbr.2022.100224>
29. Ma, Q., Tan, Y., He, Y., Cheng, L., & Wang, M. (2024). Why does mobile payment promote purchases? Revisiting the pain of paying, and understanding the implicit pleasure via selective attention. *PsyCh Journal*, 13(5), 760-779. <https://doi.org/10.1002/pchj.765>
30. Mamun, M. A. Al, Tanchangya, T., Rahman, M. A., Hasan, Md. M., Islam, N., & Yeamin, B. (2025). Measuring the influence of Fin-Tech innovation towards consumers' attitude: Moderating role of perceived usefulness. *Sustainable Futures*, 10, 100885. <https://doi.org/10.1016/j.sftr.2025.100885>
31. Mason, M. C., Zamparo, G., Marini, A., & Ameen, N. (2022). Glued to your phone? Generation Z's smartphone addiction and online compulsive buying. *Computers in Human Behavior*, 136, 107404. <https://doi.org/10.1016/j.chb.2022.107404>
32. Matar, A., & Aloqaily, A. N. (2025). The mediating influence of perceived usefulness on consumer behaviour towards driving e-wallet adoption in Jordan. *Journal of Open Innovation: Technology, Market, and Complexity*, 11(4), 100651. <https://doi.org/10.1016/j.oiotmc.2025.100651>
33. Ong, C. S., & Lin, M. Y. C. (2016). Is being satisfied enough? Well-being and IT post-adoption behavior: An empirical study of Facebook. *Information Development*, 32(4), 1042-1054. <https://doi.org/10.1177/0266666915587032>
34. Pikkarainen, T., Pikkarainen, K., Karjaluoto, H., & Pahlila, S. (2004). Consumer acceptance of online banking: an extension of the technology acceptance model. *Internet Research*, 14(3), 224-235. <https://doi.org/10.1108/10662240410542652>
35. Schiffman, L. G., & Wisenblit, J. (2019). *Consumer Behavior*. Pearson. Retrieved from https://api.pageplace.de/preview/DT0400.9781292269269_A37760957/preview-9781292269269_A37760957.pdf
36. Thakur, R., & Srivastava, M. (2014). Adoption readiness, personal innovativeness, perceived risk and usage intention across customer groups for mobile payment services in India. *Internet Research*, 24(3), 369-392. <https://doi.org/10.1108/IntR-12-2012-0244>
37. Underdown, K., & Tamara, D. (2025). Digital wallets: a study on the influence of consumer perceptions and attitudes on impulsive consumer behaviour. *Frontiers in Human Dynamics*, 7. <https://doi.org/10.3389/fhumd.2025.1545141>
38. Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology1. *MIS Quarterly*, 36(1), 157-178. <https://doi.org/10.2307/41410412>
39. Waleed Rababa, B., Ali, A., & Montaser Mohammad, A. (2025). Understanding mobile banking adoption via the technology acceptance model: evidence from Jordan. *Banks and Bank Systems*, 20(1), 23-37. [https://doi.org/10.21511/bbs.20\(1\).2025.03](https://doi.org/10.21511/bbs.20(1).2025.03)
40. Windasari, N. A., Kusumawati, N., Larasati, N., & Amelia, R. P. (2022). Digital-only banking experience: Insights from gen Y and gen Z. *Journal of Innovation & Knowledge*, 7(2), 100170. <https://doi.org/10.1016/j.jik.2022.100170>
41. Wirtz, J., & Lovelock, C. (2021). *Services Marketing*. World Scientific (US). <https://doi.org/10.1142/y0024>
42. Yuan, Y.-P., Tan, G. W.-H., & Ooi, K.-B. (2025). What shapes mobile fintech consumers' post-adoption experience? A multi-analytical PLS-ANN-fsQCA perspective. *Technological Forecasting and Social Change*, 217, 124162. <https://doi.org/10.1016/j.techfore.2025.124162>
43. Zhao, H., & Khaliq, N. (2024). In quest of perceived risk determinants affecting intention to use fintech: Moderating effects of situational factors. *Technological Forecasting and Social Change*, 207, 123599. <https://doi.org/10.1016/j.techfore.2024.123599>