

Journal of Hunan University (Natural Sciences)

Vol. 52 No. 4

April 2025

Available online at

<https://joununs.com>



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Open Access Article

 <https://doi.org/10.55463/issn.1674-2974.52.4.4>

Building Trust: Guiding Seniors Toward Online Banking Confidence

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Article History:

Received: March 7, 2025

Revised: April 7, 2025

Revised: April 21, 2025

Accepted: April 29, 2025

Published: May 30, 2025

Abstract : The rapid expansion of digital banking has transformed the financial industry; however, senior customers (50+) still face significant barriers to adoption and engagement. This study investigates how aesthetic design, communication, and transaction efficiency influence the engagement of senior customers with online banking. Specifically, it examined the mediating role of trust in this relationship to determine the extent to which trust enables adoption despite usability concerns. This research seeks to offer insights into improving digital banking inclusion for older populations by identifying key service elements that foster trust and encourage engagement. Data were collected from 113 senior banking customers selected through Slovin's formula using a quantitative approach with structural equation modelling–partial least squares (SEM-PLS). The results reveal that aesthetic design and transaction efficiency negatively impact engagement, whereas communication has a strong positive influence. Additionally, trust significantly mediates the effects of online service factors on customer engagement, suggesting that when seniors perceive banks as trustworthy, they are more likely to use online banking despite the usability challenges. These findings emphasize the need for user-friendly interface designs, transparent transaction processes, and effective communication strategies to foster digital banking inclusion among senior customers. This study contributes to technology adoption models by reinforcing the psychological and emotional dimensions of trust in digital banking.

Keywords: Online Banking Adoption, Customer Engagement, Trust Mediation, Senior Customers.



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建立信任：引导老年人迈向在线银行信心

摘要：

数字银行的迅猛发展正在深刻改变金融行业，但50岁及以上的年长客户在采用和参与方面仍面临诸多障碍。本研究旨在探讨美学设计、沟通交流与交易效率如何影响年长客户对在线银行服务的参与程度，特别是分析信任在这一关系中的中介作用，以评估信任在可用性挑战下促进采用的程度。本研究旨在通过识别能够建立信任并促进参与的关键服务要素，为提升年长群体的数字银行包容性提供有价值的见解。

本研究采用定量方法，运用结构方程建模-偏最小二乘（SEM-PLS）技术进行数据分析，样本通过Slovin公式从113名年长银行客户中选取。结果显示，美学设计与交易效率对客户参与产生负面影响，而沟通交流则具有显著的正向影响。此外，信任显著中介了在线服务因素对客户参与的影响，表明当年长客户认为银行值得信赖时，即使存在可用性挑战，他们仍更有可能使用在线银行服务。

研究结果强调了设计用户友好界面、优化透明的交易流程及实施高效沟通策略的重要性，以推动年长客户的数字银行包容性。本研究通过强化信任在数字银行参与中的心理与情感维度，为技术采纳模型提供了新的理论支持。

关键词：在线银行采纳、客户参与、信任中介、年长客户。

1. Introduction

In the contemporary digital age, online banking has emerged as a pivotal trend within the financial services industry. With rapid technological advancements and the widespread adoption of digital platforms, traditional banking is increasingly being supplemented or even replaced by digital channels that offer enhanced convenience, efficiency, and accessibility[1]. However, this digital transformation presents unique challenges, particularly for senior customers. Many seniors face usability issues, such as non-intuitive interfaces, small text sizes, and complex navigation, which can deter them from fully utilizing online banking services.

Despite the growing popularity of digital banking, there is a significant gap in engagement between senior users. Factors such as non-user-friendly aesthetics and complex transaction schemes hinder the adoption and sustained use of online banking services[2]. These issues not only reduce the overall user experience, but also diminish the trust and confidence that seniors place on these digital platforms, leading to inadequate engagement.

Trust is a critical element in shaping the digital banking experience, particularly for seniors, who may exhibit greater caution when embracing new technologies. A high level of trust can alleviate concerns regarding usability and security, thereby encouraging

seniors to interact more confidently and consistently with online banking systems[3]. Establishing trust through improved interface design and transparent communication is essential for enhancing the overall digital experience and promoting greater customer engagement.

Research on digital banking adoption has been extensive, yet a gap remains in understanding how online service factors, specifically aesthetic design, communication, and transaction efficiency, interact with trust to influence customer engagement among senior users[4]. This study aims to fill this gap by exploring the direct impact of online service factors on senior customer engagement, examining the mediating role of trust in this relationship, and providing practical insights into enhancing digital banking experiences tailored to the needs of senior customers.

This paper is organized into several key sections. The Research Methodology section outlines the study design, including the population, sampling strategy, data collection methods, and analytical approach using Structural Equation Modeling with Partial Least Squares (SEM-PLS)[5][6][7]. The Results and Discussion section presents the statistical findings, interprets their implications, and discusses how the identified online service factors influence senior customer engagement in digital banking.

The Conclusion summarizes the research findings, offers practical recommendations for banks to improve their digital services, and suggests directions for future research in this field. By understanding the relationship between aesthetic design, communication, transaction efficiency, and trust, this study aims to enhance digital banking experiences for senior customers and promote more inclusive user-centered service strategies.

2. Problem Formulations

While existing research has extensively explored digital banking adoption, there remains a distinct gap in understanding how online service factors, specifically aesthetic design, communication, and transaction efficiency, work in tandem with trust to influence customer engagement among senior users. This study aims to fill this gap by:

- Investigating the direct impact of online service factors on customer engagement among senior users.
- Examining the mediating role of trust in the relationship between online service factors and customer engagement.
- Providing actionable insights to enhance digital banking experiences tailored to the needs of senior customers.

3. Methods

This study targeted senior customers aged 50 and above as the research object because this demographic remains underserved in digital banking transformation, despite their increasing financial activity. This choice reflects both theoretical relevance, addressing trust and usability issues prevalent among older users, and practical significance, as banks seek to close the digital inclusion gap. The application of the findings is intended to guide banks in developing senior-centric digital strategies, interface designs, and communication models that improve adoption and satisfaction among older clients.

This study employed a quantitative research design using a survey method to analyze the engagement of senior customers in online banking services. The population consisted of 58,140 senior customers aged 50 and above, from whom a sample of 113 respondents was drawn using Slovin's formula to ensure statistical representativeness[8]. The survey aimed to assess the key factors influencing customer engagement using a structured questionnaire designed to measure perceptions of online service quality, trust, and engagement behaviors. Participants were selected through a purposive sampling technique, targeting individuals who actively or occasionally use digital banking platforms[8].

The study examined three independent variables: aesthetic, referring to the visual design and interface appeal of the online banking platform; communication, indicating the clarity and effectiveness of digital interactions between banks and customers; and transaction efficiency, which measures the speed and accuracy of banking transactions[9]. Trust served as the mediating variable, assessed through ability (bank's expertise in delivering services), integrity (fairness and transparency), and benevolence (commitment to customer well-being)[10]. The dependent variable, customer engagement, was evaluated based on own purchases (direct financial transactions), social influence (recommendations to others), and knowledge sharing (providing feedback and suggestions to the bank)[11].

For data analysis, this study employed Structural Equation Modeling using Partial Least Squares (SEM-PLS), a robust statistical technique that evaluates complex relationships among multiple variables. SEM-PLS was chosen because of its ability to handle small sample sizes while effectively modeling latent constructs. This approach allowed for the assessment of both direct effects (the influence of online service factors on customer engagement) and indirect effects (the mediating role of trust). The analysis provides valuable insights into the key determinants of senior customer engagement in online banking and the critical role of trust in shaping their online banking experience[5].

4. Results and Discussion

4.1. Statistical Overview

The statistical analysis was conducted using Structural Equation Modeling with Partial Least Squares (SEM-PLS), which allowed for an in-depth examination of the relationships between online service factors, trust, and customer engagement among senior banking users. Descriptive statistics provided insights into the distribution of responses, including sample means, standard deviations, t-statistics, and p-values. The analysis revealed significant variations in the impact of aesthetic design, communication clarity, and transaction efficiency on customer engagement, highlighting the key factors that influence seniors' willingness to adopt online banking services.

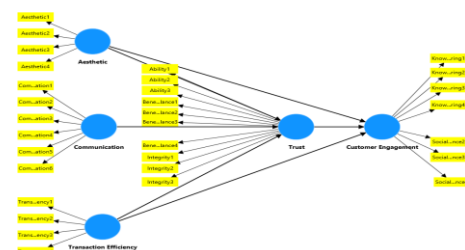


Figure 1. Conceptual Framework

Source: Figure developed by the authors

The hypothesis testing results indicated that aesthetic design had a significant negative effect on customer engagement ($\beta = -0.501, p < 0.001$). This suggests that a poorly designed user interface, characterized by complex navigation, small text sizes, and unclear icons, may deter seniors from engaging in online banking services. Similarly, transaction efficiency also showed a significant negative effect on customer engagement ($\beta = -0.438, p < 0.001$), indicating that seniors may feel discouraged by perceived transaction difficulties, such as slow processing times, unclear fee structures, or security concerns. These findings suggest that usability barriers are a major hindrance to senior customer engagement.

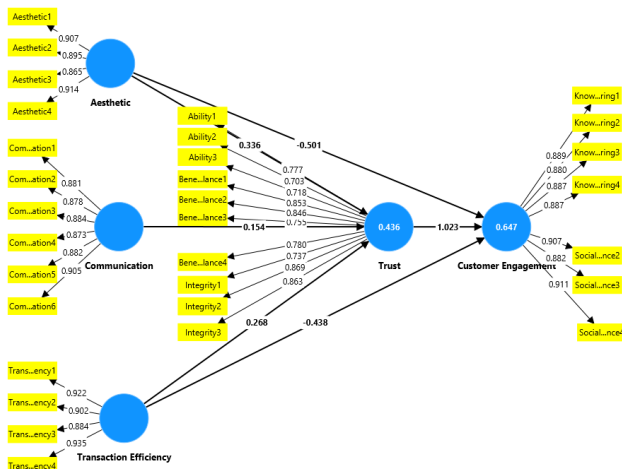


Figure 2 Constructs Outer Loading

Source: Figure developed by the authors

However, communication had a strong positive effect on customer engagement ($\beta = 1.023, p < 0.001$), signifying that clear and effective communication strategies enhance seniors' confidence in online banking services. Seniors benefit from accessible customer support, informative digital content, and transparent banking policies that help them navigate the complexities of digital banking. Effective communication reassures them of security measures, reduces uncertainty, and fosters a sense of trust in the banking system, ultimately leading to increased engagement with digital banking platforms.

Mediation analysis further confirmed the crucial role of trust in bridging the gap between online service quality and customer engagement. Trust significantly mediates the effects of aesthetic design ($\beta = 0.344, p < 0.001$), communication ($\beta = 0.158, p < 0.006$), and transaction efficiency ($\beta = 0.274, p < 0.001$) on customer engagement. This indicates that when seniors perceive a bank as reliable, ethical, and customer-centric, they are more likely to overlook usability challenges and engage in online banking services. Therefore, even if an online banking platform has certain design flaws or transaction inefficiencies, strong trust in a bank's commitment to

security and customer welfare can mitigate negative perceptions and encourage continued usage.

These findings highlight the importance of enhancing user experience by addressing key design flaws and ensuring transparent transaction processes. Banks should prioritize senior-friendly interface improvements such as larger fonts, high-contrast color schemes, simplified navigation, and accessible customer support. Additionally, clear and proactive communication strategies such as guided tutorials, chat-based support, and personalized assistance can significantly improve seniors' confidence in digital banking services. Given the strong mediating role of trust, financial institutions must actively build and maintain customer trust by demonstrating integrity, reliability, and commitment to customer security.

This study underscores the complex interplay among usability, communication, trust, and customer engagement in online banking adoption among seniors. While design- and transaction-related challenges remain barriers, effective communication and trust-building efforts can significantly enhance seniors' digital banking experience. By addressing these key factors, banks can increase customer engagement, promote digital inclusion, and ensure that senior customers benefit from the convenience and security of online banking.

4.2. Hypotheses Testing

The results of hypothesis testing provide valuable insights into the relationship between online service factors, trust, and customer engagement among senior users in online banking [10]. Structural equation model-partial least squares (SEM-PLS) analysis allowed for the examination of both direct and indirect effects, identifying key factors that significantly influence senior customers' engagement with digital banking services. The hypothesis testing results indicate a complex dynamic, in which some online service factors negatively impact engagement, while others contribute positively, with trust playing a critical mediating role.

Table 1. Hypothesis Testing Results

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Aesthetic -> Customer Engagement	-0.501	-0.507	0.082	6.077	0.000
Transaction Efficiency -> Customer Engagement	-0.438	-0.445	0.086	5.077	0.000
Communication -> Customer Engagement	1.023	1.034	0.059	17.392	0.000
Transaction Efficiency -> Trust -> Customer Engagement	0.274	0.279	0.085	3.239	0.001
Aesthetic -> Trust -> Customer Engagement	0.344	0.351	0.096	3.589	0.000
Communication -> Trust -> Customer Engagement	0.158	0.164	0.058	2.739	0.006

Source: Table developed by the authors

The first hypothesis (H1: Aesthetic \rightarrow Customer Engagement) was rejected, as the analysis showed a significant negative effect ($\beta = -0.501, p < 0.001$). This finding suggests that the design and visual appeal of online banking platforms may not necessarily enhance engagement among senior users[12]. In fact, poorly optimized aesthetic elements, such as small fonts, unclear icons, complicated navigation, and low-contrast color schemes, can create frustration and confusion, ultimately discouraging seniors from using digital banking services. The results imply that banks should focus not only on modern or visually appealing designs, but also on user-friendly, accessible, and intuitive interfaces that cater to the cognitive and sensory needs of older customers.

The second hypothesis (H2: Communication \rightarrow Customer Engagement) was accepted as communication had a positive significant effect ($\beta = 1.023, p < 0.001$). This finding highlights the importance of clear, accessible, and well-structured communication in fostering engagement among senior banking users[13]. Seniors often struggle with understanding the functionalities and security measures of online banking, and effective communication, such as step-by-step guides, FAQs, live chat support, and simplified banking instructions, play a crucial role in reducing uncertainty and enhancing confidence. When banks provide proactive and user-friendly communication, senior users are more likely to trust and actively engage in digital banking services.

Conversely, the third hypothesis (H3: Transaction Efficiency \rightarrow Customer Engagement) was rejected because transaction efficiency exhibited a significant negative effect ($\beta = -0.438, p < 0.001$). This suggests that when transaction processes are perceived as complicated, slow, or burdened with hidden costs, senior users are less likely to engage in online banking[14]. Seniors tend to prefer straightforward and reliable transaction processes, without unexpected complexities or fees. If online banking services fail to offer a smooth and transparent experience, many senior users may revert to traditional banking methods that they find more familiar and trustworthy.

The fourth, fifth, and sixth hypotheses (H4, H5, and H6, respectively) examined the mediating role of trust in the relationship between online service factors and customer engagement. The results confirmed that trust significantly mediated the effect of aesthetics ($\beta = 0.344, p < 0.001$), communication ($\beta = 0.158, p < 0.006$), and transaction efficiency ($\beta = 0.274, p < 0.001$) on customer engagement. This suggests that, even if certain online service factors present challenges, senior users are more likely to engage in online banking when they perceive the bank as trustworthy. Trust in a bank's integrity, security, and customer commitment acts as a critical buffer, enabling seniors to overcome usability concerns

and interact more frequently with online banking platforms.

The findings indicate that while usability issues may act as barriers to engagement, they can be mitigated when banks effectively communicate their reliability, security measures, and customer support systems. Seniors need reassurance that their financial transactions are safe and that the bank operates with transparency[15][3]. By prioritizing trust-building initiatives such as fraud prevention mechanisms, secure authentication methods, clear fee structures, and prompt customer support, banks can enhance senior customers' confidence and willingness to engage with digital banking.

A key takeaway from these findings is the critical role played by user-friendly design improvements. Because aesthetic design negatively impacts engagement, banks should consider optimizing their online platforms for senior users by increasing text readability, simplifying menu navigation, improving icon clarity, and ensuring high contrast for better visibility. Additionally, transaction efficiency issues must be addressed through faster processing times, clear transaction confirmations, and simplified fee structures to prevent frustration and disengagement.

Furthermore, because communication is the strongest direct influencer of engagement, banks should invest in educational programs, customer support training, and AI-driven assistance tools that help seniors navigate digital banking seamlessly. Personalized tutorials, interactive chatbots, and dedicated helplines for elderly customers can enhance the user experience and encourage active participation in online banking[16]. By focusing on transparency, simplicity, and trustworthiness, banks can significantly increase their engagement levels among senior customers.

This study highlights the complex interplay among online service quality, trust, and customer engagement in the adoption of senior online banking. Although certain usability aspects negatively impact engagement, trust plays a pivotal role in bridging these gaps. By enhancing communication, simplifying transaction processes, and building a strong foundation of trust, banks can create a more inclusive digital banking environment that encourages senior customers to use online banking services confidently and actively.

4.3. Interpretation of Findings

The findings of this study provide crucial insights into the factors that influence senior customers' engagement with online banking services. The results indicate that, while communication has a strong positive effect, both aesthetic design and transaction efficiency negatively impact engagement. Moreover, trust played a vital mediating role, highlighting the importance of perceived reliability and security in driving digital banking adoption among seniors. These results emphasize the need for user-friendly interface improvements,

transparent transaction processes, and effective communication strategies to enhance digital banking experience for older customers[3].

One of the most significant findings is that aesthetic design negatively affects customer engagement. Contrary to the assumption that visually appealing platforms enhance the user experience, the results indicate that complex or poorly optimized designs can act as deterrents. Many seniors face cognitive and sensory limitations such as declining eyesight, reduced memory retention, and difficulty in processing complex information. Aesthetic issues, such as small text sizes, intricate navigation, unclear icons, and low-contrast displays, make it difficult for them to interact with digital banking platforms, leading to frustration and disengagement. This suggests that banks should focus not only on modern visual design, but also on ensuring usability, clarity, and accessibility at their interfaces.

Similarly, transaction efficiency negatively influences engagement, indicating that seniors perceive certain aspects of online transactions to be complicated or unreliable. This could be attributed to slow processing times, hidden fees, complex authentication steps, and unclear transaction confirmation. Senior users prefer straightforward, predictable, and secure banking processes. When faced with inefficiencies, such as unexpected delays, confusing transaction structures, or security concerns, they may lose confidence in digital banking and revert to traditional banking methods. Addressing these concerns by simplifying the transaction processes, reducing unnecessary steps, and ensuring clear fee transparency can help alleviate these issues and encourage greater engagement.

By contrast, communication plays a critical role in increasing customer engagement, as evidenced by its strong positive effect. Seniors often struggle with digital banking because of a lack of familiarity, security concerns, and difficulties in understanding online procedures. Effective communication—through clear instructions, educational resources, and responsive customer support—helps alleviate these fears and fosters confidence in using digital banking services. When banks proactively guide seniors through step-by-step tutorials, offer responsive assistance through chatbots or helplines, and provide informative content, they can enhance their understanding and build customer trust.

Moreover, transparent and accessible communication reassures senior users of the security and reliability of online banking. Many seniors hesitate to use digital banking because of fear of fraud, hacking, or unauthorized access. When banks communicate security measures effectively, such as two-factor authentication, fraud detection protocols, and customer protection policies, seniors feel more secure. This in turn fosters

greater engagement and trust in digital financial services.

The findings also confirmed that trust significantly mediates the relationship between online service factors and customer engagement. This suggests that, while seniors may initially struggle with usability challenges, their engagement increases when they perceive the bank as trustworthy and reliable. Trust in a financial institution can compensate for certain usability shortcomings as seniors are more likely to engage with an online banking platform if they feel assured that the bank prioritizes their security, privacy, and overall banking experience.

For example, even if a banking platform has aesthetic limitations or transaction inefficiencies, customers who trust the bank's integrity, security, and service are more likely to persist in using digital banking services. This highlights the need for banks to actively build trust through ethical business practices, transparent fee structures, personalized customer support, and consistent service reliability.

Based on these findings, banks need to focus on three key areas to enhance senior customer engagement in digital banking.

- a. **User-Friendly Interface Design:** Banks should prioritize accessibility to their digital banking platforms by implementing larger fonts, simplified navigation, high-contrast color schemes, and clear, intuitive icons. These features can make online banking more senior-friendly and reduce the usability barriers.
- b. **Transparent and Efficient Transactions:** Banks should ensure rapid processing times, clear transaction confirmations, and straightforward fee structures to enhance user confidence. Minimizing unnecessary steps and providing real-time transaction updates can reduce confusion and increase trust.
- c. **Enhanced Communication Strategies:** Banks should develop educational content, interactive tutorials, and responsive customer service options to guide senior users in navigating digital banking. Clear and accessible communication helps to reduce uncertainty, increase familiarity, and foster engagement.

The results of this study emphasize the importance of trust, usability, and effective communication in shaping older customers' engagement with online banking. Although aesthetic design and transaction inefficiencies pose challenges, they can be mitigated when banks focus on trust-building measures and customer-friendly service improvements. By enhancing interface accessibility, ensuring transaction clarity, and fostering transparent communication, banks can create a more inclusive digital banking experience that empowers

senior customers to engage confidently in online financial services.

4.4. Implications for Practice

The findings highlight the critical need for banks to optimize their digital banking services to better accommodate senior customers. Since aesthetic design and transaction efficiency negatively impact engagement, and communication plays a crucial role in fostering trust and adoption, banks must implement strategic improvements in interface design, transaction clarity, and customer communication. By focusing on these areas, financial institutions can enhance the user experience, build trust, and increase engagement among senior banking customers.

One of the primary areas of improvement is the design of the digital banking interfaces. Because many senior customers struggle with complex navigation, small text sizes, and unclear layouts, banks must prioritize accessibility on their platforms. Implementing larger font sizes, high-contrast color schemes, clear icons, and simple navigation menus can significantly improve the usability for seniors. In addition, voice-assisted technology, touch-friendly buttons, and customizable display settings can further enhance accessibility and create a senior-friendly online banking experience.

The negative impact of transaction efficiency on customer engagement suggests that senior users find certain aspects of online transactions confusing or unreliable. To address these concerns, banks should ensure transparency in pricing, eliminate hidden fees, and simplify the transaction process. Providing clear breakdowns in transaction costs, offering fee comparison tools, and displaying estimated processing times can increase seniors' confidence in using online banking. Furthermore, reducing the number of steps required to complete transactions while maintaining security can enhance the overall user experience.

As trust significantly mediates engagement, banks must actively work to build and maintain trust among senior customers. This can be achieved through robust security measures, transparent business practices, and consistent service reliabilities. Seniors often hesitate to use digital banking because of concerns about fraud, hacking, and unauthorized transactions. Banks should proactively communicate their security measures, such as fraud protection policies, multifactor authentication, and customer guarantees, to reassure senior users. Personalized support services, such as dedicated senior customer helplines or in-branch digital banking assistance, can further build confidence and encourage adoption.

Effective communication is one of the strongest drivers of senior customer engagement with online banking. Banks should develop targeted communication strategies to cater to the needs of older customers. Step-by-step tutorials, interactive video guides, and easy-to-

understand banking instructions can help seniors navigate digital platforms with confidence. Additionally, offering multichannel support options, including phone assistance, live chat, and in-person guidance, can enhance accessibility and engagement. Training bank representatives to proactively assist senior customers with digital banking inquiries can bridge the gap between traditional and online banking experiences.

Banks should also consider personalizing digital banking services for senior users. Features such as customizable dashboards, preferred transaction shortcuts, and AI-driven assistance tailored to individual needs can enhance the usability. In addition, launching digital literacy programs and workshops for seniors can empower them with the skills and knowledge necessary to navigate online banking safely and effectively. Banks can collaborate with community centers, senior associations, and local organizations to offer hands-on training sessions and digital banking support.

By implementing user-friendly design improvements, ensuring transaction clarity, enhancing communication strategies, and prioritizing trust-building measures, banks can significantly improve senior customers' engagement with online banking. A holistic approach that addresses usability challenges, promotes transparency, and fosters trust encourages seniors to adopt and actively use digital banking services. Financial institutions should continue to innovate and adapt their digital banking platforms to meet the evolving needs of senior customers, ensuring an inclusive and accessible banking experience for all.

4.5. Theoretical Contributions

This study provides valuable theoretical insights into the role of trust in mediating the relationship between online service factors and customer engagement among senior digital banking users. While previous research has highlighted usability challenges and security concerns as barriers to online banking adoption, this study extends this understanding by demonstrating that trust plays a critical role in overcoming these barriers. The findings suggest that, even when seniors encounter aesthetic challenges or transaction inefficiencies, a strong sense of trust in the bank can mitigate these negative effects and encourage engagement with online banking platforms.

One of the key theoretical contributions of this study is its identification of trust as a psychological buffer that helps seniors overcome their apprehension regarding digital banking. The findings indicate that when seniors perceive a bank as competent, ethical, and customer-centric, they are more likely to persist in using online banking even if they initially face difficulties with the platform's usability. This aligns with trust-based adoption models, which suggest that individuals are

more willing to adopt new technologies when they believe in the service provider's integrity and reliability. This study contributes to the literature on digital financial inclusion by highlighting how trust helps to bridge the digital divide among senior customers. Older adults often have lower levels of digital literacy and technological familiarity than younger adults do. However, when banks establish trust through transparent practices, strong security measures, and customer-oriented support, seniors become more willing to engage in digital banking services. This reinforces the idea that financial institutions play an active role in fostering digital adoption among older adults, not only through technical improvements but also through strategic trust-building efforts.

The results of this study provide empirical support for the Technology Acceptance Model (TAM) and trust-based technology adoption theories. The TAM posits that perceived ease of use and perceived usefulness drive technology adoption. However, the findings suggest that, even when perceived ease of use (aesthetic and transaction efficiency) is low, trust can act as a counterbalancing force that motivates engagement. This expands the TAM by emphasizing the critical role of emotional and psychological factors, such as trust, in influencing senior users' willingness to adopt digital banking services.

Another theoretical contribution of this study is its examination of how trust reduces the risk perception in digital banking among seniors. Older users tend to associate online transactions with risks, such as fraud, hacking, and financial loss. The study confirms that when banks establish credibility, provide fraud protection measures, and communicate security protocols effectively, seniors feel safer engaging in online banking. This aligns with risk-reduction theories, which suggest that trust lowers perceived uncertainty and encourages greater technology adoption.

A novel insight from this study is the distinction between trust in technology (online banking platform) and trust in the financial institution (the bank itself). The findings suggest that even if seniors struggle with complex online banking interfaces, they may still engage in digital services if they trust the bank's overall integrity and commitment to customer well-being. This emphasizes the need for future research to explore how institutional trust and technology trust interact to influence digital banking behavior.

Unlike previous studies, which focused solely on initial adoption, this study highlights the importance of trust in sustaining long-term engagement with online banking. Seniors are less likely to frequently switch between banks than younger customers, meaning that building trust can lead to higher customer retention and loyalty over time. This finding suggests that banks should not only focus on acquiring new digital users, but also on

maintaining trust to ensure continued usage and deeper engagement with online banking services.

The insights gained from this study open new avenues for future research on trust-based technology adoption. Future studies should explore the following.

The longitudinal impact of trust on seniors' online banking behavior over time.

The interaction between trust and digital literacy in influencing adoption patterns.

Cross-cultural comparisons examine whether trust plays a similar role in different banking systems and in different demographic groups.

The role of social influence (family members, peers, financial advisors) in shaping trust and engagement with online banking among seniors.

In summary, this study contributes to the theoretical understanding of trust as a key mediator in online banking adoption among senior users. While usability factors, such as aesthetic design and transaction efficiency, present challenges, trust has been shown to significantly enhance engagement and reduce barriers to adoption. By reinforcing security, transparency, and customer-centric policies, financial institutions can increase seniors' confidence in online banking and promote digital financial inclusion. Trust, therefore, should be viewed not just as a secondary factor but as a primary driver of sustainable digital banking engagement among senior users.

5. Conclusion

This study highlights the crucial role of trust as a mediating factor in the relationship between online service quality and senior customer engagement in digital banking. While aesthetic design and transaction efficiency negatively impact engagement, effective communication significantly enhances engagement, demonstrating the importance of clear, transparent, and accessible information for senior users. The findings underscore that, even when usability challenges exist, a strong sense of trust in the bank's integrity, security, and customer commitment can encourage seniors to engage with online banking. The practical implications suggest that banks should prioritize user-friendly interface designs, streamline transaction processes, and enhance communication strategies to build trust and increase digital adoption among older customers. From a theoretical perspective, this study expands the existing technology adoption models by reinforcing the psychological and emotional dimensions of trust in overcoming usability barriers. Moving forward, banks and financial institutions must view trust not just as an additional factor but as a fundamental component in fostering long-term digital banking engagement among senior customers.

Practical Recommendations

Banks should adopt senior-friendly design features to minimize aesthetic-related barriers, which often hinder engagement. Simplified navigation structures, high-contrast visual schemes, and the use of larger legible text can significantly enhance the usability for older users. These adjustments address common age-related challenges, such as reduced visual acuity and cognitive processing, thereby making digital banking platforms more accessible and less intimidating.

Streamlining transaction processes and ensuring clear communication regarding steps and associated fees are vital for enhancing process transparency. Seniors are more likely to engage in online banking when they can easily understand the sequence of actions required and trust that there are no hidden costs. Clarity in transactional procedures reduces confusion, prevents errors, and contributes to a more reliable user experience.

The adoption of trustcentric communication strategies is equally important. Personalized, accessible, and transparent messaging helps alleviate the skepticism that many seniors harbor toward digital financial services. Whether through guided tutorials, proactive customer support, or a straightforward language, banks must ensure that communication fosters a sense of security and inclusion. Trust cultivated through consistent and empathetic communication plays a pivotal role in encouraging seniors to embrace online banking confidently.

Future Research

Future studies should examine the longitudinal impacts of trust-building strategies, explore cross-cultural applicability, and assess how digital literacy and family influence affect senior users' online banking behavior. By viewing trust not merely as a supportive factor but also as a strategic pillar, banks can sustainably increase digital engagement among aging populations.

Declarations

Conceptualization was carried out by Djibran and Madjid. Rahmat Madjid designed the methodology. Software implementation and validation were conducted using Fauzi Djibran. Formal analysis and data curation were performed by Endro Sukotjo and Eliyanti Agus Mokodompit. The original draft was collaboratively prepared by Rahmat Madjid, Endro Sukotjo, and Eliyanti Agus Mokodompit. All authors contributed to the writing, review, and editing of the manuscript, and approved the final version for submission.

The corresponding author declares that this research did not receive any specific grants from funding agencies in the public, commercial, or not-for-profit sectors. All research activities were conducted

independently without financial support from any institution or sponsor.

Acknowledgements

The authors express their sincere gratitude to Rahmat Madjid, Endro Sukotjo, and Eliyanti Agus Mokodompit for their invaluable contribution to this research. In particular, we acknowledge Rahmat Madjid for his expertise in conceptualization, methodology, and original draft preparation. Our appreciation also extends to Endro Sukotjo and Eliyanti Agus Mokodompit for their dedication to formal analysis, data curation, and significant role in drafting and refining the manuscript. Their collective efforts have greatly enhanced the quality and rigour of this study.

The authors declare no conflicts of interest regarding the publication of this manuscript. In addition, ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies, have been completely observed by the authors.

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10.1080/23311975.2025.2450295。

Word count: 5,472 words, excluding references.

Peer review information:

Whether the manuscript was fast tracked? - No

Number of reviewer report submitted in first round: 3 reports

Number of revision rounds: 2 rounds

Final revised version submitted: April 19, 2025

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