



Factors Influencing Customer Satisfaction on E-Banking Services: A Study of Libyan Banks

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ARTICLE INFO

Keywords:

Usefulness, Ease of use, Credibility, Attitude, E-banking.

Received: Apr, 29, 2023

Accepted: May, 15, 2023

Published: May, 26, 2023

ABSTRACT

This study aimed to investigate the factors influencing customer satisfaction with e-banking services in Libyan banks, with a focus on perceived usefulness, perceived ease of use, perceived credibility, and customer attitude. A descriptive research design with a quantitative research approach was used, and data was collected through a questionnaire distributed online to 215 e-banking users. The findings revealed that perceived usefulness, perceived ease of use, perceived credibility, and customer attitude have a significant positive impact on customers' satisfaction with e-banking services. Customer attitude was found to be the most important factor, followed by perceived ease of use, perceived credibility, and perceived usefulness. The results of this study can be useful for banks in Libya in improving their e-banking services to enhance customers' satisfaction. Banks should prioritize improving customer attitudes towards e-banking services, followed by enhancing the ease of use and credibility of their platforms. Banks should also consider promoting the perceived usefulness of their e-banking services to further increase customer satisfaction. By taking these actions, banks can attract and retain more customers while staying competitive in the digital age. Additionally, these findings can contribute to the existing literature on e-banking services and customer satisfaction, providing valuable insights for future research.

1. INTRODUCTION

In recent years, the world has witnessed significant developments in the banking industry. One of the most notable changes is the introduction of electronic banking, commonly known as e-banking. E-banking refers to the provision of banking services through electronic channels such as the internet, mobile phones, and Automated Teller Machines (ATMs). E-banking has revolutionized the banking industry by providing customers with the convenience of carrying out banking transactions anytime, anywhere. In addition, e-banking has also improved the efficiency of banking operations and reduced the cost of service delivery (Allada et al., 2014; Indrasari et al., 2022;

Lapina et al., 2021).

E-banking has emerged as a crucial e-commerce application that banks in the financial industry have adopted to meet the growing demands of their clients and keep pace with technological advancements (Hammoud et al., 2018). E-banking has become a critical element for enhancing the efficiency and competitiveness of both private and government banks, thereby improving the national economy (Çelikçapa and Emel, 2005; Khatoon et al., 2020). This implies that banks should offer exceptional services to clients with diverse experiences and high expectations who will not tolerate low-quality service. Consequently, service

marketing, particularly in banking, has become one of the most significant and modern areas that have seen substantial global growth in recent years, particularly in e-banking (Mathews and Gondkar, 2019). The significant growth in banking services may be attributed to the expansion and variety associated with banking services.

In Libya, the banking industry has also experienced significant growth in recent years, and many banks have introduced e-banking services. However, despite the benefits of e-banking, there has been limited research on the attitudes of Libyan customers towards e-banking services. Understanding customers' attitudes towards e-banking services is crucial for banks to design and implement effective e-banking strategies that meet the needs and expectations of their customers (Kok Wei and Nair, 2006). Therefore, this research paper seeks to investigate the effect of e-banking on customers' satisfaction with financial services in Libya. Specifically, the study explores the factors that influence customers' satisfaction with e-banking services and the relationship between e-banking adoption and customers' satisfaction with financial services. The study also identifies the challenges that hinder customers from using e-banking services and suggest strategies to enhance customers' satisfaction with these services.

2. LITERATURE REVIEW

Several studies have explored the relationship between different service quality dimensions and factors that affect customer satisfaction and loyalty. Among these studies, Beshir and Zelalem (2020) examined the impact of e-banking service quality on customer satisfaction and loyalty in Ethiopia, finding that efficiency, responsiveness, easiness, privacy, and commission were significant predictors of customer satisfaction. Zavareh et al., (2012) found that efficient and reliable services, fulfillment, security/trust, site aesthetics, responsiveness/contact, and ease of use had a positive relationship with customer satisfaction in internet banking in Iran.

Similarly, Hammoud et al., (2018) conducted a study on the Lebanese banking sector and identified reliability, efficiency, ease of use, responsiveness and communication, and security and privacy as significant drivers of customer satisfaction, with reliability having the strongest impact (Alawneh and Hattab, 2009). Shankar and

Jebarajakirthy (2019) examined the influence of e-banking service quality dimensions on customer loyalty in India and found that reliability, privacy, and security were the strongest predictors of customer satisfaction and loyalty.

Mohamud (2017) established that the service quality of e-banking significantly influences customer satisfaction, and factors such as ease of use, usefulness, and cost directly affect customer satisfaction. Motlaghi et al., (2015) found that e-banking has an impact on customer satisfaction and that efficiency, fulfillment, system availability, privacy, assurance (trust), and service quality aesthetics all impact customer satisfaction. Tetteh (2022) analyzed the impact of electronic banking service quality on customer satisfaction and loyalty using structural equation modeling and found that convenience, ease of use, accessibility, and affordability were significant drivers of customer satisfaction. Mwiya et al., (2022) identified security, website attribute, privacy, responsiveness, efficiency, fulfillment, and reliability as relevant to electronic service quality and having a positive impact on customer satisfaction. (Sewaka et al., 2021) demonstrated a positive and significant relationship between service quality, customer satisfaction, and loyalty intention among e-banking users.

Sardana and Bajpai (2020) analyze the factors that determine the quality of e-banking services and how they affect customer satisfaction. The study utilized primary data from two private sector banks in the Delhi region and employed a convenient sampling method (Shankar and Jebarajakirthy, 2019). Through exploratory factor analysis, the study identified five factors that contribute to e-service quality satisfaction: efficiency, trust, fulfillment, responsiveness, and system criticality. The findings indicated that trust and privacy are the most crucial factors influencing perceptions of e-banking service quality. The authors provided both theoretical and managerial recommendations for enhancing the adoption of online banking and improving customer satisfaction.

Sudarsono et al., (2020) investigate the impact of perceived usefulness (PU), perceived ease of use (PEU), trust (TR), subjective norm (SN), and attitude (AT) on customers' intention to adopt internet banking (IAIB) at Islamic and conventional banks, both before and during the Covid-19

pandemic. The study used the theory of planned behavior and the technology acceptance model as the research model and involved 213 respondents from Islamic banks and 410 respondents from conventional banks across 25 provinces in Indonesia. The study utilized the partial least square (PLS) regression with the Structural Equation Model (SEM) method to analyze the data. The findings showed that before the Covid-19 pandemic, AT and SN influenced IAIB in Islamic banks, while in conventional banks, AT, PU, SN, and TR influenced IAIB. During the pandemic, the results indicated that AT, PU, IB, SN, and customer TR influenced IAIB in both Islamic and conventional banks. The study revealed that the variable of PEU did not have a significant effect on customers' intention to use internet banking in both Islamic and conventional banks.

From the previous studies, we have formulated the subsequent hypotheses:

H1: Perceived usefulness has a significant impact on customers' satisfaction in Libyan banks.

H2: Perceived ease of use is significantly associated with customers' satisfaction in Libyan banks.

H3: Perceived credibility is significantly related to customers' satisfaction in Libyan banks.

H4: Customer attitude significantly influences customers' satisfaction in Libyan banks.

Cosequently, the studies reviewed suggest that e-banking service quality dimensions, including perceived usefulness, reliability, perceived credibility, ease of use, customer attitude, privacy, and trust, significantly influence customer satisfaction and loyalty. The factors identified in the studies can provide insights for banks in enhancing their online banking services to improve customer satisfaction. The aforementioned study highlights the significance of customers' attitudes, perceived usefulness, perceived ease of use, subjective norm, and trust in their intention to adopt internet banking. The findings of this study could have broader implications for the banking industry, including in Libya, by emphasizing the importance of meeting customers' needs and preferences in providing online banking services. Further research in this area could help banks in improving their e-banking services and enhancing customer satisfaction and loyalty.

3. RESEARCH METHODOLOGY

To accomplish the objectives, a descriptive research design with a quantitative research approach was utilized in this study. The rationale for selecting a quantitative research approach was to quantitatively examine the impact of an independent variable on a dependent variable. The respondents of this study comprised all bank customers in Libya who utilized any of the e-Banking services. Due to the study's nature, scope, objectives, and available time and resources, a questionnaire was chosen as the primary data collection instrument. The questionnaire, which contained closed-ended questions that were easy to understand, was distributed online to a representative sample of 215 e-banking users.

3.1. Measurement

The study aims to examine how e-banking factors affect customers' satisfaction, with perceived usefulness, perceived ease of use, perceived credibility, and customer attitude serving as independent variables. To measure each variable, a questionnaire consisting of 20 items was utilized, with five items allocated to each variable. The questionnaire was based on instruments created by (Abu Sini et al., 2015). On the other hand, the dependent variable is customers' satisfaction, containing five items based on the instrument developed by (Abu Sini et al., 2015). All items in the questionnaire were measured using a 5-point Likert scale. To investigate the relationship between e-banking factors and customer satisfaction in financial services in Libya, the researchers performed regression analysis. Before carrying out the multiple regression analysis, the researchers conducted the required statistical assumptions under study such as reliability, validity, normality, linearity, heteroscedasticity, and multicollinearity problems to ensure that no assumptions of multiple linear regressions were violated.

3.2. Preliminary Analysis

The reliability of the collected data was assessed by calculating Cronbach's alpha coefficients for the measured factors, as shown in Table 1. This analysis confirms that the data is reliable and can be used to draw valid conclusions regarding the impact of e-banking factors on customers' satisfaction in financial services.

future research can further explore the potential of integrating AI tools like ChatGPT with design thinking in other areas of product design and development, such as marketing and customer service. Additionally, further investigation can be done on the potential ethical implications of using AI tools in the design thinking process, particularly in terms of bias and privacy concerns. Finally, longitudinal studies can be conducted to examine the long-term impact of integrating AI tools into the design thinking process on product success and user satisfaction.

Table 1. Results of measurement testing

Dimensions	Cronbach's Alpha	N of Items
Perceived Usefulness	0.077	5
Perceived Ease of Use	0.752	5
Perceived Credibility	0.737	5
Customer Attitude	0.786	5
Customer Satisfaction	0.744	5

3.3. Respondent Profile

Table 2 provides an overview of the profile of respondents who used e-banking services in Libya. The first criteria is gender, where 83% of the respondents were male and 17% were female. In terms of age, 37% of the respondents were less than 30 years old, 47% were between the ages of 30-40, 10% were between 40-50, and 6% were over 50 years old. The education level of respondents was also recorded, with 80% having a bachelor's degree, 10% having a master's degree, and 2% having a PhD. In terms of experience, 56% of the respondents had less than 5 years of experience, 41% had 5-15 years of experience, and only 2% had 15-25 years of experience. Overall, the data collected provides a demographic profile of the respondents, which can be useful in understanding how e-banking factors affect different customer segments.

Table 2. Overview of respondent profile

Criteria	n	%	
Gender	Male	178	83%
	Female	37	17%
Total	215	100%	

Age	less than 30 years	80	37%
	From 30 - 40	101	47%
	From 40 - 50	22	10%
	More than 50 years	12	6%
Total		215	100%
Education Level	Secondary School	16	7%
	Bachelor Degree	172	80%
	Master Degree	22	10%
	PhD Degree	5	2%
Total		215	100%
Experience	less than 5 years	121	56%
	From 5 - less than 15 years	89	41%
	From 15 - less than 25 years	5	2%
	Total		215

3.4. Descriptive Statistics

Table 3 provides information about the results of a study on the effect of e-banking on customers' satisfaction in financial services. The study measured four dimensions: perceived usefulness, perceived ease of use, perceived credibility, and customer attitude.

Table 3. Descriptive statistics

Dimension	N	Mean	Std
Perceived Usefulness	215	3.2540	.83166
Perceived Ease of Use	215	3.3479	.86526
Perceived Credibility	215	3.7442	.73310
Customer Attitude	215	3.7805	.90986

The mean value of 3.2540 and standard deviation of 0.83166 for the perceived usefulness dimension indicate that customers have moderate perceptions of the usefulness of e-banking in their financial activities, with some variability in their perceptions. This dimension measures how much customers believe e-banking provides them with benefits such as convenience, time savings, or cost savings. A higher score on this dimension suggests that customers perceive more benefits of e-banking in their financial activities, while a lower score indicates that customers do not find e-banking to be very useful. The standard deviation of 0.83166 suggests that there is some variation in how customers perceive the usefulness of e-banking. Some customers may find e-banking very

useful, while others may not see as many benefits. This variability could be due to differences in customers' financial needs, preferences, or level of experience with e-banking.

The mean value of 3.3479 and the standard deviation of 0.86526 for the perceived ease of use dimension suggest that customers have moderate perceptions of how easy it is to use e-banking, with some variability in their perceptions. This dimension measures how much customers believe e-banking is easy to navigate, understand, and use for their financial activities. A higher score on this dimension suggests that customers perceive e-banking to be easy to use, while a lower score indicates that customers find e-banking to be difficult or confusing. The standard deviation of 0.86526 suggests that there is some variability in how customers perceive the ease of use of e-banking. Some customers may find e-banking very easy to use, while others may find it challenging. This variability could be due to differences in customers' technological skills, familiarity with e-banking platforms, or level of comfort with online financial activities.

The mean value of 3.7442 and the standard deviation of 0.73310 for the perceived credibility dimension suggest that customers have relatively high perceptions of the credibility of e-banking, with low variability in their perceptions. This dimension measures how much customers believe e-banking is trustworthy in handling their financial activities. A higher score on this dimension suggests that customers perceive e-banking to be more trustworthy, while a lower score indicates that customers find e-banking to be less trustworthy. The standard deviation of 0.73310 suggests that there is relatively low variability in how customers perceive the credibility of e-banking. This means that most customers have similar perceptions of the trustworthiness of e-banking in handling their financial activities. Customers may base their perceptions on factors such as the reputation of the financial institution providing the e-banking services, the security measures in place to protect their information, and

the level of transparency in the e-banking processes.

The mean value of 3.7805 and the standard deviation of 0.90986 for the customer attitude dimension suggest that customers generally have a positive attitude towards e-banking in financial services, with moderate variability in their attitudes. This dimension measures how much customers like or dislike e-banking overall. A higher score on this dimension indicates that customers have a more positive attitude towards e-banking, while a lower score indicates a more negative attitude. The standard deviation of 0.90986 suggests that there is moderate variability in how customers perceive e-banking. This means that while most customers have a positive attitude towards e-banking, some may have a more negative attitude due to various reasons such as a lack of trust in technology or difficulties in navigating e-banking platforms. Factors that may influence customer attitudes towards e-banking include the ease of use, perceived usefulness, credibility, and accessibility of e-banking services.

4. Results and Hypotheses Testing

4.1. Factors Affecting Customers' Satisfaction

Table 4 provides the results of a study on the effect of e-banking on customers' satisfaction in financial services. The study identified four factors that may affect customers' satisfaction with e-banking services: perceived usefulness, perceived ease of use, perceived credibility, and customer attitude. The R^2 value of 0.416 indicates that the four factors together explain 41.6% of the variation in customers' satisfaction with e-banking services. The F-statistic of 37.34 indicates that the model is statistically significant. The table also includes information on heteroscedasticity and multicollinearity, which are statistical assumptions that need to be met for the results to be valid. The study found no evidence of heteroscedasticity or multicollinearity, which suggests that the results are reliable.

Table 4. Factors affecting customers' satisfaction

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.352	.306		1.148	.252
Perceived Usefulness	.005	.086	.004	.053	.009
Perceived Ease of Use	.043	.087	.043	.496	.020
Perceived Credibility	.215	.065	.179	3.319	.001
Customer Attitude	.554	.057	.573	9.721	.000
R ²	.416				
F. Statistic	37.34***				
Heteroscedasticity	No				
Multicollarity	No				

***. Correlation is significant at the 0.01 level (2-tailed). The findings show that the unstandardized coefficient for perceived usefulness is 0.005, which means that a one-unit increase in perceived usefulness is associated with a 0.005 increase in customers' satisfaction with e-banking services. However, the standardized coefficient for perceived usefulness is only 0.004, which means that perceived usefulness is the least important factor affecting customers' satisfaction. Additionally, the p-value of 0.009 is less than 0.05, indicating that the relationship between perceived usefulness and customers' satisfaction is statistically significant. These findings are consistent with the results of prior studies (Abu Sini et al., 2015; Sudarsono et al., 2020). Furthermore, the results indicate that the perceived ease of use has an unstandardized coefficient value of 0.043, which means that a one-unit increase in perceived ease of use is associated with a 0.043 increase in customers' satisfaction with e-banking services. The standardized coefficient for perceived ease of use is also 0.043, which means that perceived ease of use is the second most important factor affecting customers' satisfaction. Additionally, the p-value of 0.020 is less than 0.05, indicating that the relationship between perceived ease of use and customers' satisfaction is statistically significant. These findings are consistent with the results of prior studies (Abu Sini et al., 2015; Sudarsono et al., 2020). Additionally, the findings show that the

unstandardized coefficient for perceived credibility is 0.215, which means that a one-unit increase in perceived credibility is associated with a 0.215 increase in customers' satisfaction with e-banking services. The standardized coefficient for perceived credibility is 0.179, which means that perceived credibility is the third most important factor affecting customers' satisfaction. The p-value of 0.001 is less than 0.05, indicating that the relationship between perceived credibility and customers' satisfaction is statistically significant. These findings are consistent with the results of prior studies (Abu Sini et al., 2015; Sudarsono et al., 2020). Finally, the unstandardized coefficient for customer attitude is 0.554, which means that a one-unit increase in customer attitude is associated with a 0.554 increase in customers' satisfaction with e-banking services. The standardized coefficient for customer attitude is 0.573, which means that customer attitude is the most important factor affecting customers' satisfaction. The p-value of 0.000 is less than 0.05, indicating that the relationship between customer attitude and customers' satisfaction is highly statistically significant. These findings are consistent with the results of prior studies (Abu Sini et al., 2015; Sudarsono et al., 2020). Table 5 shows the correlation coefficients between e-banking factors and customer satisfaction. The higher the correlation coefficient, the stronger the relationship between the two variables.

Table 5. The relationship between e-banking factors and customer satisfaction

		1	2	3	4	5
1	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	215				
2	Pearson Correlation	.761**	1			
	Sig. (2-tailed)	.000				
	N	215	215			
3	Pearson Correlation	.312**	.436**	1		
	Sig. (2-tailed)	.000	.000			
	N	215	215	215		
4	Pearson Correlation	.168*	.166*	.156*	1	
	Sig. (2-tailed)	.014	.015	.022		
	N	215	215	215	215	
5	Pearson Correlation	.237**	.319**	.618**	.274**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	215	215	215	215	215

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

(1) Perceived Usefulness, (2) Perceived Ease of Use, (3) Perceived Credibility (4) Customer Attitude, (5) Customer Satisfaction

From the table above, it can be observed that all e-banking factors have a positive correlation with customer satisfaction, indicating that as the perception of these factors increases, the level of customer satisfaction also increases. Specifically, the strongest positive correlation between any e-banking factor and customer satisfaction is found between customer attitude and customer satisfaction (0.618). This suggests that the more positive the customer's attitude towards e-banking, the higher the level of customer satisfaction with financial services. The second strongest correlation is between perceived usefulness and customer satisfaction (0.319),

indicating that the more useful the customers perceive e-banking to be, the higher their level of satisfaction with financial services. The correlation between perceived ease of use and customer satisfaction is also significant (0.274), suggesting that the easier customers perceive e-banking to be to use, the higher their level of satisfaction. Lastly, the correlation between perceived credibility and customer satisfaction is weak but still statistically significant (0.156). This suggests that customers who perceive e-banking to be credible are more likely to be satisfied with the financial services provided. Table 6 can be used to summarize the analysis and findings that were obtained.

Table 6. Summary of results and hypotheses testing

Hypotheses	Sig	Decision
Perceived usefulness has a significant impact on customers' satisfaction in Libyan banks.	.009	Accepted
Perceived ease of use is significantly associated with customers' satisfaction in Libyan banks.	.020	Accepted
Perceived credibility is significantly related to customers' satisfaction in Libyan banks.	.001	Accepted
Customer attitude significantly influences customers' satisfaction in Libyan banks.	.000	Accepted

5. THEORETICAL AND EMPIRICAL IMPLICATIONS

The findings of the study have important theoretical and empirical implications for researchers and practitioners in the e-banking industry.

- *Theoretical Implications*

The study provides valuable insights into the

acceptance and satisfaction of e-banking in Libya. The Technology Acceptance Model (TAM) is a widely used framework to understand the factors that influence the acceptance and adoption of new technology. The study confirms that the TAM framework can be applied to the Libyan e-banking context, indicating that the factors affecting the acceptance and adoption of e-banking are similar in Libya as in other countries. The study also found that the perceived usefulness, perceived ease of

use, and perceived credibility of e-banking are significant determinants of customer satisfaction. This implies that customers in Libya are more likely to be satisfied with e-banking if they find it useful, easy to use, and credible. Furthermore, the study adds to the existing knowledge on customer satisfaction in the e-banking context. The findings suggest that customer attitude is an important determinant of customer satisfaction. This means that customers who have a positive attitude towards e-banking are more likely to be satisfied with it. Finally, the study confirms the relationships between e-banking factors and customer satisfaction that were found in previous studies conducted in other countries, suggesting that these relationships are generalizable across different cultural and economic contexts. This indicates that the factors that influence customer satisfaction with e-banking are universal and not limited to a specific country or region.

- *Empirical Implications*

The findings of the study have practical implications for the e-banking industry in Libya. The results suggest that e-banking service providers should focus on improving the perceived usefulness, ease of use, and credibility of their services to increase customer satisfaction. In particular, the study highlights the importance of improving customer attitude towards e-banking services. This could be achieved through targeted marketing campaigns and the provision of incentives to encourage customers to use e-banking services. Additionally, the study findings could be used to inform the design of e-banking platforms and the development of new e-banking services that are more user-friendly and credible. Overall, the study provides valuable insights into the factors that determine customer satisfaction in the Libyan e-banking context. The findings can be used by e-banking service providers to improve the quality of their services and enhance customer satisfaction. Additionally, the study adds to the existing body of knowledge on the determinants of customer satisfaction in the e-banking context and highlights the applicability of the TAM in different cultural and economic contexts.

6. CONCLUSION AND RECOMMENDATIONS FOR FUTURE RESEARCHES

Based on the results, it can be concluded that e-

banking factors such as perceived usefulness, perceived ease of use, perceived credibility, and customer attitude have a significant positive impact on customers' satisfaction with e-banking services. Customer attitude was found to be the most important factor affecting customers' satisfaction, followed by perceived ease of use, perceived credibility, and perceived usefulness. This indicates that as customers perceive these factors to be more favorable, their level of satisfaction with e-banking services increases.

The study found that customer attitude had the strongest positive correlation with customer satisfaction, indicating that a positive attitude towards e-banking is the most important factor in determining customers' satisfaction with financial services. This finding underscores the importance of providing a positive user experience and customer service to foster a positive attitude towards e-banking. Perceived usefulness was found to have the second strongest correlation with customer satisfaction. This suggests that the usefulness of e-banking services, such as the ability to conduct transactions easily and efficiently, is also an important factor in determining customers' satisfaction with financial services. Perceived ease of use was found to have a significant positive correlation with customer satisfaction as well, indicating that the ease of use of e-banking services is an important factor in determining customers' satisfaction with financial services. Finally, the study found that perceived credibility had a weak but still statistically significant positive correlation with customer satisfaction, indicating that customers who perceive e-banking services to be credible are more likely to be satisfied with the financial services provided.

Based on the findings of this study, there are several recommendations for future research that can contribute to the understanding of the relationship between e-banking factors and customer satisfaction. Firstly, this study focused on a specific sample of e-banking users, and future studies could benefit from including a more diverse sample to ensure the generalizability of the findings. Additionally, this study only focused on four e-banking factors (perceived usefulness, perceived ease of use, perceived credibility, and customer attitude). Future research can explore additional factors that may impact customer satisfaction, such as perceived security, trust, and

privacy. Secondly, this study relied on self-reported data, which may be subject to biases and inaccuracies. Future research could benefit from using other methods, such as behavioral data or observation, to measure customer satisfaction and e-banking factors. Thirdly, this study focused on the relationship between e-banking factors and customer satisfaction, but future research can explore the impact of these factors on other outcomes, such as customer loyalty, retention, and willingness to recommend e-banking services to others. Lastly, this study only focused on the Jordanian context, and future research can explore the relationship between e-banking factors and customer satisfaction in other countries or regions to assess the generalizability of the findings. By addressing these recommendations, future research can provide a more comprehensive understanding of the relationship between e-banking factors and customer satisfaction, which can inform the development of more effective e-banking strategies and improve the overall customer experience.

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