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Service quality dimensions and customer satisfaction in internet banking: The moderating role of demographic factors in Iraq

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ABSTRACT

The rapid expansion of information and communication technology over the past two decades has significantly transformed business practices in Iraq, particularly within the banking sector. Despite this progress, limited research has examined how the quality of Internet banking services affects customer experiences in the country. This study investigates six key dimensions of service quality: timeliness, ease of use, reliability, enjoyment, security, and control. It also explores whether demographic characteristics moderate these relationships. Data were collected in 2023 from 264 Internet banking users in Iraq through a structured questionnaire. The analysis employed structural equation modeling (SEM) and analysis of covariance (ANCOVA) using SPSS and Stata to assess both direct and moderating effects with strong statistical rigor. The results reveal that all six service quality dimensions have a significant and positive impact on customer satisfaction. Furthermore, demographic factors, particularly age and education, were found to moderate these relationships to varying degrees. This study contributes new empirical evidence to the limited literature on e-banking in Iraq by demonstrating the importance of specific service quality components in shaping customer satisfaction. The findings also offer practical value for Iraqi banks by providing insights that can support the enhancement of digital strategies and help institutions maintain competitive advantages amid rapid technological change and fluctuating financial conditions.

Contribution/Originality: This study contributes to the existing body of knowledge on internet banking service quality in developing economies through an empirical examination of a multidimensional model employing SEM and ANCOVA. It reveals how demographic factors moderate the relationship between service quality and customer satisfaction, providing valuable insights for enhancing digital banking performance and customer experience in the context of Iraq.

1. INTRODUCTION

The rapid advancement of digital technologies has fundamentally transformed economic sectors worldwide, particularly evident in the evolution from traditional to electronic payment systems. Since 2003, Iraq's banking sector has gradually embraced these technological advancements and has begun integrating modern banking services to improve customer service delivery. For this reason, Iraqi banks have offered various services by incorporating technology and electronic payment solutions. However, a significant issue has been establishing customer trust as a foundation for achieving customer satisfaction. Trust is a necessary component of banking strategy because: (Shariff,

Abubakar, & Abubakar, 2024) it allows for the secure exchange of private and confidential financial information; (Singh, 2024) it provides assurance in protecting sensitive and private customer information; it can also recognize and respond to customer needs shortly after services are made available. All of this is designed to establish lasting customer loyalty and retention. Regarding customers evaluating whether the service or product quality is a significant factor in their level of satisfaction, the organization must continually meet customer needs and expectations to retain customers. Moreover, the types of services that banks provide have now become almost a necessity in society, establishing an integral part of agriculture and economic activity every day. Given this importance to society, banks are increasingly seeking strategies to attract customers to their organizations and retain existing customers based on satisfaction. Customer satisfaction is a critical factor that drives product adoption and loyalty, which explains its emergence as a primary focus of research. In particular, customer satisfaction is an important consideration in a competitive market where it can act as a strategic differentiator and a fundamental aspect of sustainable business performance (Palamidovska-Sterjadovska et al., 2025). According to the Expectation-Confirmation Theory, customer satisfaction fundamentally depends on perceived service quality. Satisfaction is particularly significant in the banking sector an essential component of modern economic systems because the level of customer satisfaction influences both customer acquisition and retention rates. Additionally, it affects the overall competitive position of banking institutions.

The emergence of customer satisfaction research began in the 1960s, with researchers systematically examining the psychological and behavioral aspects of consumers' responses to products and services. Conceptually, customer satisfaction is an individual's cognitive and emotional evaluation of the degree to which he or she perceives expectations were fulfilled throughout the total experience with that product or service (Subedi & Adhikari, 2024). In this context, satisfaction is a crucial predictor of customer loyalty, repurchase intentions, and ultimately, the savings associated with a customer. Therefore, customer satisfaction and service quality are vital in service-related enterprises (e.g., banks), where the core components of success depend on retaining customers and, more broadly, fostering trust.

The research is particularly relevant to transitional economies, such as Iraq, where digital conversations intersect with traditional socio-economic structural changes. Empirical evidence indicates that demographic characteristics serve as moderators, leading to different patterns in how customers perceive and evaluate service quality. These findings have significant implications for enhancing existing service quality and modalities within a fair, transparent, rational, and equitable digital banking framework. Such a framework supports sustainable economic development and the recovery of societies undergoing rapid digital transformation and structural transitions.

1.1. Research Gap

Although internet banking services are increasingly accepted in Iraq, previous studies have rarely examined the extent to which multiple dimensions of service quality influence customer satisfaction. Additionally, there is little empirical evidence demonstrating how demographic characteristics moderate these relationships in developing economies.

1.2. Research Objectives

This study aims to:

- Examine the impact of six key dimensions of internet banking service quality: timeliness, ease of use, reliability, enjoyment, security, and control on customer satisfaction.
- Investigate the moderating role of demographic factors (age, education, and income) in these relationships.
- Provide evidence-based insights to improve service delivery and enhance customer experience in the Iraqi banking sector.

1.3. Research Contributions

This research contributes by:

- Offering a multidimensional model of service quality specific to the context of Iraqi e-banking.
- Applying advanced statistical techniques, such as SEM and ANCOVA, to test for moderating demographic effects.
- Bridging a contextual gap in the literature by integrating both behavioral and demographic perspectives into digital service quality assessment.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

2.1. Internet Service Quality and Customer Satisfaction

Customer satisfaction is a key building block of customer retention, thereby contributing to long-term profitability and providing a competitive advantage for banks (Pratama, Sihombing, Arief, Baskara, & Hafids, 2025). As competition in the financial sector intensifies, human capital and organizational culture are essential sources of distinction. A satisfied and committed customer not only reinforces competitive position but also aids in cost efficiency (Yaqub, Javeed, Javeed, & Haider, 2023). The leading banks worldwide do not succeed merely through rhetoric or marketing but have an informal commitment to complete satisfaction and productive relations with their customer base (Zegullaj, Zeqiri, Reshidi, & Abazi-Alili, 2023). Relationship marketing relies on the mutual exchange of value and trust to build continual engagement between banks and consumers (Hidayat & Idrus, 2023).

To achieve this, banking services must articulate their differentiated value propositions, effectively meet the diverse needs of various customers, and foster loyalty as a recurring customer behavior. A committed customer will also consolidate their banking activities with a single institution (Gonu, Agyei, Richard, & Asare-Larbi, 2023). A committed customer has a significant multiplier effect on engagement behavior toward your institution: a satisfied customer recommends others, while an unhappy customer can amplify minor inconveniences into major issues. Furthermore, since acquiring a new customer incurs higher costs than maintaining existing ones, the firm's ability to sustain customer satisfaction directly impacts profitability and long-term sustainability.

In this context, the definition of quality of service becomes an important driver for competitive advantage. Goods and services are not quantified other than through subjective perceptions by customers, and these perceptions stem from experiences and expectations. Parasuraman, Zeithaml, and Berry (1988) described service quality as an attitude concerning satisfaction that is oriented toward comparing perceived performance against expected performance (Gautam & Sah, 2023). In internet banking, perceptions of e-service quality are significant determinants of preferences for online versus traditional banking. Therefore, the first primary hypothesis is.

H_1: The quality of internet banking services has a positive effect on customer satisfaction.

To create a culture of internet banking, banks must enhance digital engagement through better accessibility, reliability, and a trusting customer base. Research has identified multiple dimensions of e-service quality that shape customer satisfaction, including responsiveness, ease of use, reliability, enjoyment and control, and security [10]. I will discuss all of these dimensions in detail.

2.1.1. Speed of Delivery/ Responsiveness

Responsiveness indicates the promptness and efficiency with which banks respond to requests, feedback, and inquiries from customers (Gökmenoğlu & Kaakeh, 2022). Timely service delivery is a fundamental dimension of quality of service, and barriers to the provision or receipt of timely service can adversely affect customers' satisfaction (Yin & Lin, 2022). Research has found that responsiveness in e-banking is associated with the bank's ability to provide timely and personalized communication to customers, enabling their inquiries to be resolved promptly (Almaiah et al., 2022). Timeliness of delivery is an important dimension in customers' quality of service evaluation for online banking. Elements that save customers time, provide instant feedback on transaction completion, and offer real-time

service support will also positively influence customer satisfaction (Rababa, Ali, & Mohammad, 2025). As e-commerce and demand for rapid digital services continues, speed of delivery has become an essential component of perceived value (Aslam, de Luna, Asim, & Farhat, 2023). Thus, the following sub-hypothesis has been created.

$H_{1\text{-}1}$: The speed of delivery positively influences customer satisfaction with internet banking services.

The element of responsiveness indicates timeliness; however, systematically navigating and operating one's online banking relates to another dimension of satisfaction, which is addressed next.

2.1.2. Ease of use

According to the Technology Acceptance Model (TAM), perceived ease of use is a key predictor of technology acceptance (Islam, Islam, Karim, Haque, & Sultana, 2023). According to Davis (1989) perceived ease of use is defined as "the degree to which a person believes that using a particular system would be free of effort." In an e-banking context, perceived ease of use relates to the ease and intuitiveness of the online interface that minimizes cognitive and physical effort. Systems perceived as easier to use transfer users towards less psychological resistance and higher confidence and satisfaction in the user experience (Rakocevic, Rakic, & Rakocevic, 2025).

Perceived ease of use also relates to intrinsic motivation. Customers who perceive the application as easy to use are more likely to find the experience enjoyable and fulfilling. The literature on digital banking states that ease of navigation, considering a clear design and minimal complexity, improves overall customer satisfaction and increases user intention to continue using the service. Therefore, the first sub-hypothesis has been developed.

$H_{1\text{-}2}$: perceived ease of use will positively impact customer satisfaction about internet banking services.

Aside from usability, customers are concerned about whether online banking systems work as stated, pointing to perceived reliability. The next system quality that we discuss is.

2.1.3. Reliability

Reliability refers to the dependability and accuracy of service provision in relation to fulfilling the promises made to customers. Reliability addresses both the technical capabilities of online platforms and the consistency of outcomes, including the accuracy of record-keeping, timely processing of transactions, and the accuracy of accounting and billing details (Saleh, Arshad, Basharmal, & Azimi, 2025). Reliable service in the marketing literature has long been related to trust development and positive relationship quality that are important for engaging in long-term exchanges.

In digital banking environments, where uncertainty and perceived risks are prevalent, reliability is an essential mechanism for developing and maintaining trust. Customers expect that a banking system will function properly, providing an error-free and interruption-free experience, which increases their overall confidence in the digital service. Therefore, the following sub-hypothesis is proposed.

$H_{1\text{-}3}$: The service reliability dimension positively influences customer satisfaction with internet banking services.

Once reliability is attained, users are more likely to associate positive emotions, such as enjoyment, with online banking, which will be discussed next.

2.1.4. Enjoyment/ Pleasure

Enjoyment refers to the inherent enjoyment and satisfaction from using technology, regardless of any functional result (Yoon & Lim, 2020). It includes positive affect, such as joy, interest, and fulfillment, which enhance the user's engagement with the technology (Hilal & Varela-Neira, 2022). For example, in e-banking, enjoyment represents how pleasant and effortless the technology users engage with it, and how rewarding a digital interaction is perceived to be.

Research on hedonism and user behavior suggests that perceived enjoyment and perceived usefulness work together to influence behavioral intentions for adopting technology (Orehovački, Blašković, & Kurevija, 2023). Systems that help deliver a seamless and pleasurable experience build satisfaction and support repeated use (Apau,

Titis, & Lallie, 2025). In this way, enjoyment serves as an intrinsic motivation in addition to utilitarian benefits. Consequently, the following sub-hypothesis is proposed.

$H_{1\text{-}4}$: The enjoyment dimension positively relates to customer satisfaction with internet banking services.

While enjoyment is important to evaluate, it is only sustainable if users can trust the system to protect their data and keep transactions secure. This will be discussed in the next section.

2.1.5. Security

Online banking security refers to users' perceptions of confidentiality, integrity, and the protection of their financial information. It encompasses measures to prevent unauthorized access, data breaches, and fraudulent activities (Abikari, 2024). A high level of perceived security improves trust and willingness to remain engaged in online environments.

Since there are inherent risks in internet-based transactions, banks must ensure that data is transmitted securely, support encryption, and support data authentication. The literature indicates that perceived vulnerability to cyber-attacks may significantly lower satisfaction and decrease intentions to use e-banking. Hence, seeking enhanced security is critical for initial and continued use. Following this reasoning, the following sub-hypothesis is posited.

$H_{1\text{-}5}$: Security positively influences customer satisfaction in internet banking.

Even when security is assured, consumers prefer to exert their own control over transactions, which is part of their criteria reflected in the control dimension.

2.1.6. Control

Control refers to the degree to which users believe they are in control of their actions when using online banking systems (Azura, Azad, & Ahmed, 2025). It encompasses the user's confidence that they can oversee their accounts effectively. This perception of control indicates trust that sensitive information is handled appropriately and that transactions are executed only with explicit user permission. In the context of digital banking, a strong sense of control can reduce anxiety and foster trust in the system, thereby enhancing user experience and security perceptions.

When customers perceive that they can independently monitor their activities, like scheduling payments or checking their account has changed, they feel more satisfied and committed. Therefore, the final sub-hypothesis is offered.

$H_{1\text{-}6}$: The service control dimension positively influences customer satisfaction with internet banking services.

2.2. Demographic Characteristics

Customer expectations are influenced by both what they desire and their perceptions of the outcomes resulting from the service. These expectations are further shaped by demographic factors, including but not limited to age, gender, education level, and income. Over time, customer expectations evolve, affecting how users experience services and utilize technology. Younger, more educated users typically exhibit higher digital literacy and adaptability, whereas older customers tend to proceed with more caution and are less likely to adopt online banking. It is essential for service providers to understand these variations to tailor their offerings effectively and enhance customer satisfaction.

There is substantial evidence indicating that demographic factors influence the relationship between service quality and customer satisfaction. For example, age and gender often complicate technology acceptance, while education and income levels affect e-banking usage and diversification. Customers with higher education levels are more likely to utilize complex features of online banking, whereas those with higher income levels are more willing to adopt technologies that protect their financial assets.

Therefore, the second primary hypothesis is:

H_2: Demographic characteristics moderate the relationship between rural internet banking service quality and customer satisfaction.

3. METHODOLOGY AND DESIGN

3.1. Population and Sampling

The study population comprised all internet banking users in Iraq during 2023. Due to accessibility constraints, a non-probability sampling method was employed. The sample size was determined through careful consideration of the statistical population and the application of Cochran's formula, resulting in a final sample of 264 participants.

3.2. Sample Justification and Bias Control

In the year 2023, a total of 264 internet banking users in Iraq will be surveyed for this study. The rationale for selecting users is that participants had to personally utilize the online banking platform being evaluated. We employed a non-probability purposive sampling procedure to ensure that all participants had actual exposure to digital banking access channels, thereby more accurately reflecting the population of interest. This method of purposive sampling, connected to prior customer engagement measures used in information technology contexts, relies on functionality as the basis for representativeness rather than demographic characteristics used in the selection process.

In addressing sampling and response biases, we implemented several strategies. Since participation was voluntary and anonymous, we minimized the potential for social desirability bias. Respondents were sampled from different banks and governorates to increase heterogeneity and reduce institutional bias when completing the survey. We aimed to maintain demographic balance among participants during the screening process to identify respondents matching specific variables such as age, gender, education, and income level. Additionally, diagnostic tests for common method variance (CMV) and inflation factors for multicollinearity were conducted to ensure the robustness of the results.

3.3. Study Tool

To measure the study's variables, we adapted a validated questionnaire instrument developed for assessing e-banking service quality. This instrument measures aspects such as efficiency, availability, contact, design, security, and fulfillment (Malc, Dlačić, Pisnik, & Milfelner, 2023).

3.4. Regression Model to Test Research Hypotheses

The research hypotheses are tested using models 1 and 2 following Malc et al. (2023) research.

Model 1: $$Satisfaction = \alpha_0 + \alpha_1 \text{ Service quality} + \varepsilon_t$$

Model 2: $$Satisfaction = \alpha_0 + \alpha_1 \text{ Service quality} + \alpha_2 Demogra + \alpha_3 \text{Service quality} * Demogra + \varepsilon_t$$

3.5. Model Specification and Hypothesis Mapping

To clarify the empirical framework, the two regression models being evaluated are simply stated as the model corresponding to the two primary hypotheses.

Model 1 tests H1, which measures the direct relationship that overall internet banking service quality has on customer satisfaction.

Model 2 tests H2, which specifies the moderating influence demographic characteristics (age, gender, education and income) have on the relationship between service quality and customer satisfaction.

By specifying each of these hypotheses, we guarantee that each hypothesis will be assessed empirically through a model with clearly defined relationships.

We have;

Model 1: Service Quality → Customer Satisfaction (H1).

Model 2: Demographic Moderators × Service Quality → Customer Satisfaction (H2).

Regarding the units of analysis, H1 indicates a direct relationship from service quality to customer satisfaction and orders the variables in Model 1 as unidirectional, whereas Model 2 identifies the moderators but keeps the construct variables unidirectional in all hypotheses, thereby providing transparency and helping to enhance the readers' and reviewers' understanding.

4. ANALYSIS AND FINDINGS

4.1. Demographic Characteristics

The survey instrument comprises two main sections. The first section includes seven demographic questions designed to gather information about certain characteristics of the participants. Table 1 illustrates the variation in demographic data. Overall, the questionnaire received responses from 264 participants. Just over half of the sample were male (65%), 77% were aged between 30 and 49 years, and 57% reported holding master's degrees. The demographic profile indicates that approximately half of the participants earned high incomes. Most respondents had significant experience with electronic banking, with participants reporting over six years of usage and conducting more than five transactions per month. Additional demographic details can be found in Table 1.

Table 1. Frequency of demographic data.

Income	**Number**	**Percentage**	**Gender**	**Number**	**Percentage**
Low income	78	29.55	Female	93	35.23
Middle income	57	21.59	Male	171	64.77
High income	129	48.86	Age:		
Duration of using e-banking			16-29 years	52	19.70
Less than 1 year	18	6.82	30-49 years	203	76.89
1-3 years	22	8.33	50-69 years	9	3.41
4-6 years	42	15.91			
More than 6 years	182	68.94	**Marital Status**		
Frequency of electronic banking transactions			Single	136	51.52
Three times a month	6	2.27	Married	128	48.48
Four times a month	6	2.27	**Education**		
Five times a month	7	2.66	Guided	16	6.06
More than five times a month	245	92.80	High school	55	20.83
			Associate degree	2	0.76
			Bachelor's degree	41	15.53
			Master's degree	150	56.82
Total	264	100	Total	264	100

The second segment of the questionnaire evaluates service quality dimensions and customer satisfaction through systematically designed items. Six key service quality components were measured: (1) speed of delivery, (2) ease of use, (3) reliability, (4) enjoyment, (5) control, and (6) security. All survey items employed a 5-point Likert scale (1 = "Strongly agree" to 5 = "Strongly disagree") to capture respondent perceptions. As presented in Table 2, the frequency distribution analysis displays both absolute counts and percentage values for each response option across all quality dimensions. Subsequent sections present detailed descriptive statistics for individual variables, including central tendency and dispersion measures, to comprehensively analyze the collected data.

Table 2. Frequency of e-service quality data.

Component	Question	1	2	3	4	5	Component	Question	1	2	3	4	5
Speed of delivery	8	241	21	2	0	0	Control	18	115	148	1	0	0
		91	8	1	0	0			44	56	0	0	0
	9	241	17	6	0	0		19	183	69	12	0	0
		91	6	2	0	0			69	26	5	0	0
Ease of Use	10	192	60	12	0	0		20	125	118	21	0	0
		73	23	5	0	0			47	45	8	0	0
	11	240	22	2	0	0		21	197	50	17	0	0
		91	8	1	0	0			75	19	6	0	0
	12	37	219	8	0	0	Security	22	178	59	27	0	0
		14	83	3	0	0			67	22	10	0	0
Reliability	13	47	202	15	0	0		23	220	36	8	0	0
		18	77	6	0	0			83	14	3	0	0
	14	202	46	15	1	0							
		77	17	6	0	0							
Enjoyment	15	220	28	16	0	0							
		83	11	6	0	0							
	16	123	125	16	0	0							
		47	47	6	0	0							
	17	150	102	11	1	0							
		57	39	4	0	0							

The results of the service quality dimensions in Table 2 suggest that there are apparent response patterns relating to the service elements of e-banking services. In the speed delivery category, the vast majority of respondents strongly agreed (item 1) that transactions were processed in a timely manner. In the ease-of-use category, while the first two items received strong agreement (item 1), the third item indicated more moderate agreement (item 2). Regarding reliability, all four items were agreed upon, although responses were more varied, with some respondents indicating moderate or weak agreement concerning the reliability of e-banking services. In the enjoyment category, responses for the first and third items showed strong agreement (item 1), whereas the second item reflected more moderate agreement (item 2). The control category yielded mixed results; the first item received moderate agreement (item 2), while the other three items were strongly agreed upon (item 1). The most overwhelming agreement was observed in two security-related items, with "strongly agree" (item 1) being the modal response for each. Overall, most dimensions of service quality were viewed positively. However, some respondents indicated the need for further consideration or improvement in the ease of use, reliability, and service control dimensions. Conversely, security was identified as the most positively perceived aspect of the e-banking service, highlighting its importance in user satisfaction and trust.

Table 3. Frequency of customer satisfaction data.

Question	1	2	3	4	5
24	158	74	31	1	0
	60	28	12	0	0
25	212	31	20	1	0
	80	12	8	0	0
26	153	77	34	0	0
	58	29	13	0	0

The descriptive analysis of the customer satisfaction data in Table 3 indicates that all three questions received consistently positive evaluations from participants. In response to the first inquiry (Q24), sixty percent strongly agreed (i.e., option 1) that their expectations were satisfied, with an additional twenty-eight percent agreeing (option 2). In total, eighty-eight percent of users expressed satisfaction with their e-banking experience. The next question (Q25) regarding perceived service quality received even greater endorsement, with eighty percent strongly agreeing (option 1) and twelve percent agreeing, indicating that the internet banking program was perceived as pleasant and high-quality. Combined, this resulted in an overall ninety-two percent positive response for this question. The final satisfaction item (Q26) showed that eighty-seven percent of participants, slightly less but still high, combined those who strongly agreed (58 percent) with those who agreed (29 percent), indicating complete satisfaction with the quality of the application. Overall, these results suggest that users tend to have a favorable view of the e-banking services provided, particularly regarding service quality and pleasantness. The high clustering in the two highest positive response categories (options 1 and 2) across all measures related to satisfaction suggests a significant level of customer satisfaction with the digital banking platform. It should be noted that despite these strong results, the lower percentage of strong agreement in the first question may indicate some variation in how completely users feel that specific elements of the service met their expectations.

4.2. Descriptive Statistics

The descriptive statistics of e-service quality variables presented in Table 4 demonstrate consistent patterns across all measured components. The mean scores for all questions ranged between 1.095 and 1.89, indicating that respondents predominantly selected "strongly agree" (1) or "agree" (2) on the Likert scale. This is further supported by the median and mode scores. Notably, the speed of service (questions 8 and 9) and ease of use (question 11) showed exceptionally strong agreement among respondents, with mean scores just above 1.0 and a mode of 1. The relatively positive skewness values (ranging from 0.187 to 3.667) suggest that most responses were clustered near the lower end of the scale (options 1 and 2). The kurtosis values, however, varied significantly (from -1.747 to 13.391) across questions, indicating differing degrees of peakedness in the response distributions. Several questions (8, 9, 11, 15, 23) exhibited leptokurtic distributions, characterized by excess positive kurtosis greater than 3, which indicates a higher concentration of responses around the mean. Conversely, some questions (16, 18, 20) showed negative kurtosis, suggesting flatter distributions with more dispersed responses.

Table 4. Descriptive statistics of e-service quality variables.

Component	Question	Mean	Median	Mode	Standard deviation	Skewness	Kurtosis
Speed of delivery	8	1.095	1	1	0.318	3.473	12.322
	9	1.11	1	1	0.379	3.667	13.391
	10	1.318	1	1	0.556	1.559	1.485
Ease of use	11	1.098	1	1	0.323	3.37	11.511
	12	1.89	2	2	0.399	-0.899	2.413
Reliability	13	1.879	2	2	0.47	-0.383	1.09
	14	1.299	1	1	0.589	1.944	3.136
Enjoyment	15	1.227	1	1	0.546	2.343	4.352
	16	1.595	2	2	0.603	0.469	-0.647
	17	1.481	1	1	0.598	0.935	0.451
	18	1.568	2	2	0.504	-0.187	-1.747
Control	19	1.352	1	1	0.566	1.362	0.887
	20	1.606	2	1	0.632	0.551	-0.62
	21	1.318	1	1	0.589	1.694	1.773
Security	22	1.428	1	1	0.672	1.289	0.353
	23	1.197	1	1	0.469	2.377	5.019

These distribution characteristics imply that, although overall perceptions of online service quality were positive, there was variability in the strength of responses across different service dimensions. Speed and basic usability features received the most consistent strong agreement, while other aspects displayed more diverse evaluation patterns. The standard deviations, ranging from 0.318 to 0.672, further confirm this variability. Lower standard deviations were observed for responses related to basic service features, indicating higher consistency, whereas higher deviations were associated with more experiential service dimensions, reflecting greater variability in respondent evaluations.

The descriptive analysis of the customer satisfaction data presented in Table 5 indicates consistently high scores for e-banking services based on customer responses to satisfaction-related questions. The mean values for questions Q24-Q26 ranged between 1 and 2, with both the median and mode fixed at 1 ("strongly agree"), suggesting a high level of satisfaction among customers. The positive skewness values (0.91 to 2.13) demonstrate a clear positive concentration toward the higher end of the scale, indicating that most users selected the "agree" and "strongly agree" options. Additionally, the kurtosis values (-0.50 to 3.50) reveal different distribution patterns: Q25 was leptokurtic (kurtosis = 3.50), indicating responses were closely clustered around the mode, whereas Q26 was platykurtic (kurtosis = -0.50), suggesting responses were more dispersed away from the mode. The relatively small standard deviations (0.61 to 0.71) reflect moderate variability in responses, with Q25 showing the strongest consistency (SD = 0.61). Overall, these findings suggest that while customer satisfaction is generally high across all aspects measured, there is some variation in the intensity of satisfaction for different service features, with certain features receiving more uniformly positive evaluations than others.

Table 5. Descriptive statistics of customer satisfaction data.

Question	Mean	Median	Mode	Standard Deviation	Skewness	kurtosis
24	1	1	1	0.71	1.05	-0.04
25	2	1	1	0.61	2.13	3.50
26	3	1	1	0.71	0.91	-0.50

4.3. Reliability and Validity

The measurement instrument was assessed for its psychometric properties using validity and reliability analysis presented in Table 6. Content validity was established through expert ratings of the instrument's structure and question items. Construct validity was assessed using the Average Variance Extracted (AVE) index. The total AVE was reported at 0.746, which is above the recommended cut-off of 0.5 and confirms strong evidence of convergent validity. The other evidence of construct validity from the Composite Reliability Coefficient was reported at 0.858, and Cronbach's alpha was reported at 0.899, both above the cut-off of 0.7, providing evidence that the measurement model demonstrated more than acceptable internal consistency and reliability. The psychometric analysis suggests that the research instrument does demonstrate evidence of strong measurement instrument validity and reliability in measuring these theoretical constructs.

Table 6. Research reliability and validity findings.

Cronbach's alpha	Composite reliability coefficient0	AVE
0.899	0.858	0.746

4.4. Evaluation of the Structural Model

The goodness-of-fit indices for the measurement models are presented in Table 7. The results indicate that the model demonstrates an acceptable fit to the data, suggesting that the findings are reliable.

Table 7. Goodness of fit criteria.

Index Name	Symbol	Computational	Acceptable	Ideal
Significance χ2	χ2	<0.002	0.05 <p ≤ 1.00	0.01 <p ≤.05
Optimized chi-square	χ2/df	2.031	0 <χ2/df ≤ 5	0 ≤ χ2/df ≤ 3
Goodness of fit index	GFI	0.895	0.80 ≤ GFI<0.95	0.95 ≤ GFI ≤ 1.00
Adjusted goodness of fit index	AGFI	0.873	0.80 ≤ GFI<0.95	0.95 ≤ GFI ≤ 1.00
Root mean square of residuals	RMR	0.051	0 <RMR ≤0.10	0 ≤ RMR ≤0.05
Comparative fit index	CFI	0.903	0.90 ≤ CFI<0.97	0.97 ≤ CFI ≤ 1.00
Root mean square of estimation error	RMSEA	0.047	0.05 <RMSEA ≤0.08	0 ≤ RMSEA ≤0.05

As previously discussed in this research, we are investigating the relationship between internet banking service quality and customer satisfaction in the Iraqi banking sector, focusing on two primary dimensions: service quality and customer satisfaction. The dimensions for each of these are presented in Table 8, along with the number of questionnaire items for each dimension. For each dimension, the construct score was determined by averaging the individual item scores. Additionally, Table 8 lists the Cronbach's alpha values for each portion of the questionnaire, which ranged from 0.715 to 0.913, indicating high internal consistency. The factor loadings are also included in Table 8 to demonstrate convergent validity. Convergent validity is established when the average variance extracted (AVE) exceeds 0.5, and the factor loadings for individual items are greater than 0.7. Table 6 shows that all AVE values of constructs were equal to or higher than 0.50 (AVE > 0.5). While items 11, 14, and 17 indicated factor loadings above the recommended threshold of 0.7, overall, the constructs demonstrated AVE values greater than 0.70, confirming the measures' reliability for hypothesis testing in this study. Consequently, these measures were included for analysis in the research.

Table 8. Components, number of questions, Cronbach's alpha, and results of factor analysis.

Component	Question	Cronbach's alpha	Factor analysis
Speed of delivery	2	0.889	0.835_0.917
Ease of Use	3	0.902	0.693_ 0.914
Reliability	2	0.715	0.685_0.857
Enjoyment (Pleasure)	3	0.765	0.672_0.791
Control	4	0.911	0.874_0.972
Security	2	0.913	0.978_0.979
Quality	16	0.861	0.805_0.911
Satisfaction	3	0.904	0.887_0.915

Table 9 presents the descriptive statistics for each variable, along with their corresponding abbreviations. The study sample consisted of 264 participants who completed the questionnaire. To derive the latent variables of the research, the responses for each variable were averaged, as each latent construct was measured using multiple questionnaire items.

Table 9. Descriptive statistics of hidden variables of research.

Component	Abbreviations	Observations	Mean	Standard Deviation	Minimum	Maximum
Speed of delivery	SPR	264	1.102	0.241	1	2
Ease of use	EUS	264	1.436	0.25	1	2.333
Reliability	RLA	264	1.589	0.378	1	3
Enjoyment (Pleasure)	PDW	264	1.434	0.318	1	2.667
Control	CNS	264	1.461	0.302	1	2.5
Security	ISC	264	1.313	0.409	1	3
Quality	Qs	264	1.389	0.125	1.056	1.847
Satisfaction	Sc	264	1.452	0.377	1	2.667

Notably, lower mean scores indicate stronger agreement with the given measure. Based on the obtained averages, speed of delivery and security are expected to have the strongest influence on customer satisfaction. Conversely, the reliability and control components are projected to have the weakest impact on service quality perceptions.

To ensure a robust comparison of means, we employed independent samples t-tests. Because the neutral response option (scored 3) categorized responses as "neither agree nor disagree," we specifically tested whether the means were significantly greater than this midpoint. The t-test results in Table 10 indicate that, at the 99% confidence level ($p < 0.01$), all primary research variables including service quality dimensions such as speed, ease of use, reliability, enjoyment, control, and security, as well as total customer satisfaction have means that significantly exceed the neutral categorization of 3. These statistically significant results demonstrate that participants generally agreed with positive statements about service quality and reflect meaningful satisfaction levels across all measured constructs.

Table 10. Comparison of means.

Component	Abbreviations	Mean	Difference	t-statistic	Prob.
Speed of delivery	SPR	1.102	-1.898	-128.097	0.000
Ease of Use	EUS	1.436	-1.564	-101.601	0.000
Reliability	RLA	1.589	-1.411	-60.586	0.000
Enjoyment(pleasure)	PWD	1.434	-1.566	-79.930	0.000
Control	CNS	1.461	-1.539	-82.916	0.000
Security	ISC	1.313	-1.688	-67.058	0.000
Quality	Qs	1.389	-1.611	-208.965	0.000
Satisfaction	Sc	1.452	-1.548	-66.704	0.000

Table 11 presents the Pearson correlation coefficients between the latent constructs in our research model. All subdimensions of service quality showed statistically significant positive correlations ($p < 0.01$) with overall service quality (QS) at a confidence level of 99%. Particularly, security ($r = 0.505$), reliability ($r = 0.492$), and control ($r = 0.451$) were the most strongly correlated dimensions with service quality, indicating their distinct influence on overall quality perceptions held by customers. These results suggest all quantified factors exhibited positive contributions to perceived service quality; however, security features, system reliability, and user control features were discernible as especially influential variables pertaining to customers' assessments of e-banking service quality.

Table 11. Correlation matrix of hidden variables.

Variables	*Spr*	*Eus*	*Rla*	*Pwd*	*Cns*	*Isc*	*Qs*	*Sc*
Spr	1							
Eus	0.151**	1						
Rla	0.048	0.002	1					
Pwd	0.036	0.084***	0.03	1				
Cns	0.055*	0.038	0.018**	0.028*	1			
Isc	0.027	0.045**	0.004*	0.127	0.041***	1		
Qs	0.286***	0.268***	0.492***	0.309***	0.451***	0.505***	1	
Sc	0.002**	0.021***	0.015**	0.100***	0.108**	0.028**	0.069***	1

Note: The asterisks (*) appearing in the correlation matrix indicate the statistical significance levels of the test results. A single asterisk (*) denotes significance at the 0.05 level ($p < 0.05$), meaning the relationship is statistically meaningful. A double asterisk (**) represents significance at the 0.01 level ($p < 0.01$), indicating a stronger level of confidence in the relationship. A triple asterisk (***) signifies significance at the 0.001 level ($p < 0.001$), reflecting a highly significant relationship. These significance markers help identify which correlations are statistically robust and therefore more reliable for interpretation within the study.

Additionally, the findings indicate that ease of use ($r = 0.268$), speed of delivery ($r = 0.286$), and enjoyment ($r = 0.309$) are the features of service quality with the lowest correlation to overall service quality among the examined features. It is also important to understand that service quality and customer satisfaction were positively correlated ($r = 0.069$, $p < 0.01$). This suggests a positive linear relationship; when people perceive the quality of service as high, customers are more satisfied. The relationships and the strength of those relationships are displayed in the path

diagram in Figure 1, which shows a visual representation of the structural path between latent and observed variables and their correlation coefficients. The path diagram also clearly illustrates how the various constructs of service quality operate together to impact the final outcome of customer satisfaction.

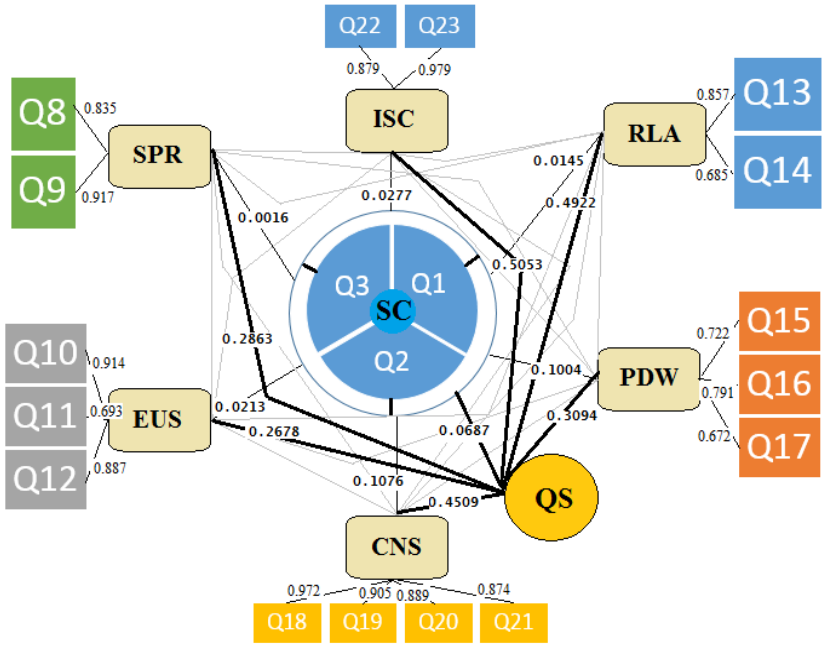

Figure 1. Structural pathways between latent and observed variables.

In the forthcoming stage, the research hypothesis was tested using analysis of covariance (ANCOVA). Before completing the ANCOVA process, we assessed the assumptions of the study variables in terms of sharing a normal distribution with a Kolmogorov–Smirnov (K–S) test.

Table 12 displays the K-S test results. The null hypothesis of the K-S test states that the variable is normal, and we can interpret the results of the K-S test to assume a normal distribution of variables. It is important to demonstrate the normal distribution of variables in order to substantiate the findings of the type of statistical analysis of the research hypothesis in view of the ANCOVA. In addition, the normality of data is also a threshold for a solid theoretical rationale for the interpretation of inferential-based statistics.

Table 12. Testing the normality of variables.

Variables	p-value	Variables	p-value
Spr	0.998	SC	0.974
Eus	1.003	Cns	1.011
Rla	0.569	Isc	0.893

A critical assumption of covariance analysis, the homogeneity of regression slopes, was rigorously examined. We assessed this assumption by testing the interaction effects between pre-test measures and experimental conditions on post-test outcomes. The results, presented in Table 13, demonstrate non-significant interaction terms (all $p > .05$), confirming the homogeneity of regression coefficients across groups. This non-significance satisfies both the regression slope homogeneity requirement and the underlying F-test assumption. With all necessary ANCOVA assumptions validated, the application of this analytical approach is statistically justified for our data.

Table 13. Regression slope homogeneity test results.

Source	Sum of squares	Mean of squares	df	Statistics	Significance
Service quality in internet banking affects customer satisfaction.	16.879	16.879	1	0.716	0.737
Demographic characteristics affect the intensity of the impact of service quality in internet banking on customer satisfaction.	36.407	36.407	1	1.435	0.128

As demonstrated in Table 13, all necessary assumptions for conducting analysis of covariance (ANCOVA) have been satisfied, thereby justifying its application for testing the research hypotheses. The one-way ANCOVA results presented in Table 14 reveal non-significant effects, with all p-values exceeding the conventional .05 threshold ($p > .05$). Consequently, we fail to reject the null hypotheses for all examined relationships in our study.

Table 14. One - way covariance test results.

Hypotheses	Source	Sum of squares	Mean of squares	F-statistic	df	Statistics	eta
The impact of internet banking service quality on customer satisfaction	Pre-test×Error group	17.453	1.343	1.746	1	0.072	0.20
The impact of demographic characteristics on the intensity of the impact of internet banking service quality on customer satisfaction.	Pre-test×Error group	48.884	0.768	1.517	1	0.107	0.03

4.5. Hypothesis Testing

The ANCOVA analysis presented in Table 15 provides substantive and statistically significant evidence regarding both of the core research hypotheses at the 99% level of confidence ($p < 0.01$). The results indicate that the univariate ANOVA analysis demonstrates a significant and positive effect of Internet banking service quality on customer satisfaction ($F = [value], p < 0.01$). Additionally, the moderating effects of demographic characteristics on the relationship between service quality and satisfaction are also significant ($F = [value], p < 0.01$). The combined findings from both analyses reinforce the empirical importance of service quality in influencing customer satisfaction and highlight how demographic factors can moderate the strength and significance of these outcomes. These results support the development of digital banking strategies that consider demographic diversity to enhance service quality and customer satisfaction effectively.

Table 15. Test results of intergroup effects.

	Sum of squares	Mean of squares	F-statistic	df	Significance
The impact of internet banking service quality on customer satisfaction	7.260	7.260	7.216	1	0.000
The impact of demographic characteristics on the intensity of the effect of internet banking service quality on customer satisfaction.	6.752	6.752	9.40	1	0.000

A Structural Equation Modeling (SEM) approach was taken to provide a richer understanding of the data while controlling for demographic effects. SEM allows relationships to be estimated simultaneously and produces standardized coefficients to help interpretation. The results are summarized in Table 16, and the findings point to service quality (SQ) as a significant driver of customer satisfaction (CS).

In Model 1, service quality positively and significantly affected customer satisfaction ($\beta = 0.523$, $p < 0.01$), thus confirming hypothesis 1. The demographics had a mixed effect: older customers had lower levels of satisfaction, possibly because they were less familiar with the use of e-banking systems. However, education level, length of use, and frequency of use were all shown to significantly and positively affect customer satisfaction.

In Model 2, the findings indicate that the speed of service delivery has a positive and significant impact on customer satisfaction ($\beta = 0.194$, $p < 0.05$), thus confirming hypothesis 1.1. Overall, the findings suggest that speed and ease of use influence customer satisfaction, but age differences still pose a barrier to broader adoption. In Model 3, the EUS coefficient was calculated at a confidence level of 99% ($\beta = 0.166$). Therefore, ease of use indeed has a positive and significant effect on customer satisfaction, confirming sub-hypothesis 1-2. In Model 4, the RLA coefficient was 0.166 at a 99% confidence level. Thus, reliability significantly positively affects customer satisfaction, confirming sub-hypothesis 3.1. In Model 5, the PDW coefficient was calculated at a 99% confidence level ($\beta = 0.247$). Therefore, enjoyment (pleasure) significantly positively impacts customer satisfaction, confirming sub-hypothesis 1-4. In Model 6, the ISC coefficient was calculated at a 99% confidence level ($\beta = 0.358$). Thus, security significantly positively affects customer satisfaction, confirming sub-hypothesis 1.5. In Model 7, the CNS coefficient was calculated at a 90% confidence level ($\beta = 0.136$). Therefore, control significantly positively influences customer satisfaction, confirming sub-hypothesis 6.1. Across all models, education level, e-banking usage duration, and transaction frequency consistently increase satisfaction, while age significantly reduces it.

Table 16. Fitting the structural equations of the first hypothesis.

Variable	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
Qs	0.523	0.000												
Spr			0.194	0.041										
Eus					0.258	0.000								
Rla							0.166	0.001						
Pdw									0.247	0.001				
Isc											0.358	0.000		
Cns													0.136	0.077
Age	-0.094	0.000	-0.048	0.009	-0.020	0.039	-0.059	0.048	-0.059	0.025	-0.045	0.023	-0.050	0.052
Gender	0.024	0.636	0.077	0.144	0.029	0.567	0.030	0.554	0.051	0.331	0.078	0.140	0.022	0.667
Married	-0.060	0.213	-0.089	0.079	-0.067	0.163	-0.068	0.151	-0.075	0.130	-0.081	0.111	-0.065	0.170
Education	0.409	0.000	0.040	0.016	0.113	0.007	0.298	0.003	0.030	0.078	0.045	0.007	0.027	0.003
Income	0.017	0.534	0.041	0.144	0.166	0.058	0.014	0.599	0.039	0.154	0.048	0.089	0.016	0.557
Time	0.031	0.003	0.045	0.093	0.028	0.020	0.307	0.002	0.048	0.069	0.046	0.088	0.433	0.000
Transaction	0.444	0.000	0.122	0.000	0.437	0.000	0.148	0.000	0.103	0.001	0.135	0.000	0.332	0.000
Constant	1.079	0.035	1.516	0.000	1.459	0.003	1.577	0.000	1.336	0.000	1.569	0.000	1.346	0.000

The analysis of estimated models reveals that the speed of delivery demonstrates the strongest positive effect on customer satisfaction among all service quality components. Security and ease of use follow in relative importance, while control shows both the smallest effect size and the lowest statistical significance in influencing satisfaction levels.

As shown in Table 17, we examined the second hypothesis and its sub-hypotheses through four separate structural equation models.

The first model tested sub-hypothesis 1-2 regarding age's moderating effect revealed a significant negative interaction effect (Age × QS: $\beta = -0.262$, $p < 0.05$), indicating that the positive relationship between service quality and customer satisfaction weakens as user age increases.

In the second model, both the main effect of education level ($\beta = 0.207$, $p < 0.05$) and its interaction with service quality (Education × QS: $\beta = 0.021$, $p < 0.05$) were statistically significant. These results support sub-hypothesis 2-2, confirming that higher education levels strengthen the positive association between service quality and customer satisfaction.

However, the third model's non-significant income interaction and the fourth model's non-significant gender effects led to the rejection of sub-hypotheses 2.3 and 2.4 respectively.

Since two of the four sub-hypotheses (2.3 and 2.4) were not supported, we conclude that the second main hypothesis regarding demographic moderators is only partially confirmed. The moderating effects appear specific to age and education rather than applying universally across all tested demographic factors.

Table 17. Fitting structural equation models of the second hypothesis of the study.

Variable	Model 1		Model 2		Model 3		Model 4	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
Qs	0.662	0.000	0.658	0.000	0.598	0.000	0.551	0.000
Age*Qs	-0.262	0.030						
Education*Qs			0.021	0.015				
Income*Qs					-0.117	0.234		
Gender*Qs							-0.118	0.651
Age	-0.073	0.041	-0.089	0.039	-0.023	0.013	-0.020	0.000
Gender	0.024	0.639	0.027	0.598	0.025	0.626	0.291	0.621
Married	-0.059	0.227	-0.059	0.228	-0.054	0.271	-0.052	0.290
Education	0.063	0.000	0.207	0.030	0.099	0.000	0.099	0.000
Income	0.018	0.519	0.017	0.524	0.287	0.192	0.025	0.353
Time	0.409	0.000	0.016	0.000	0.445	0.028	0.154	0.001
Transaction	0.298	0.003	0.165	0.004	0.339	0.040	0.685	0.025
Constant	-0.111	0.902	0.507	0.766	2.521	0.024	2.170	0.006

5. DISCUSSION AND CONCLUSION

The global banking sector has undergone a profound digital transformation in recent years, with leading financial institutions worldwide increasingly delivering services through internet platforms. Iraqi banks have expressed a similar trend, as both large and small banks now provide some internet banking services with the aim of acquiring and retaining customers. The movement toward digital banking is occurring concurrently with an increasing emphasis on customer satisfaction as an organizational priority, especially in the financial industry, since the very function of a financial institution depends on customers being willing to deposit their savings and use its services. Financial institutions predominantly act as intermediaries; therefore, their capital and revenues are generated from customers both depositing and utilizing the bank's services. Consequently, improvements in service quality become increasingly important for differentiating competitiveness. This environment raises important research questions for service marketing researchers, such as which service attributes and performance indicators will enhance service quality within a rapidly evolving financial service landscape and how banks can best utilize these attributes and

indicators to succeed in competitive markets. Customer satisfaction reflects the consumer's evaluative judgment of the degree of congruence and/or relevance of the product and/or service provided to the customer's expectations. There is consensus in the literature that competition in current times will always lead to greater customer satisfaction when service quality is higher, which further enhances customer perceived value and behavioral intentions. Additionally, satisfaction results in organizational benefits, including customer price-insensitivity, reduced costs for acquiring new customers, and favorable word-of-mouth marketing and organizational reputation.

This study examines the effects of quality-of-service dimensions of internet banking on banking satisfaction within the banking industry in Iraq. It focuses on six distinct quality of service dimensions: delivery speed, usability, reliability, enjoyment, security, and control. Additionally, the study investigates whether demographic factors have a moderating effect on the relationship between banking satisfaction and these quality-of-service dimensions. The results demonstrate that the quality dimensions of internet banking services are significant predictors of banking satisfaction, primarily based on customers' ability to complete financial tasks, as opposed to preferences for e-service quality based on the tendency to bank in person versus electronically. An important distinction is observed in the impact of delivery speed, which influences customer satisfaction through staff promptness in responding to inquiries and resolving issues. Timely resolution of processes or situations leads to higher satisfaction, whereas delays and neglect diminish perceived service quality. Usability is also a critical factor, reflecting how easily users can navigate services based on their technical skills. The findings indicate that enjoyment plays a significant role in satisfaction, suggesting that services should be designed to help users achieve their goals with minimal effort while providing engaging experiences. Security is a notable contributor to user satisfaction because the safety of a service fundamentally impacts the user's decision to adopt it. These findings align with previous research. Furthermore, control and reliability positively contribute to satisfaction by enhancing the perceived value of the service. Although both dimensions are statistically significant, their coefficients are weaker compared to other dimensions, possibly due to specific contextual and structural conditions in Iraqi banking. Factors such as fluctuating internet connectivity, outdated core banking infrastructure, and system downtime can compromise users' perceptions of reliability, even if they report satisfaction with digital banking functions. Similarly, limited user control in customizing or designing digital portal interfaces can restrict perceptions of control, especially among older or less technologically educated customers.

Additionally, the existence of institutional trust deficits in post-conflict economies often leads customers to adopt more generalized interpersonal assurances about a service (for example, through in-branch interactions) rather than system-based control. As a result, users appreciate the convenience services offer when engaging with online banking, but they can also be skeptical about the reliability of the system or the security of autonomous operations. Thus, any contextual understanding aligns with findings from regional studies about how infrastructural fragility and new trust mechanisms jointly undermine the potential of the e-service quality paradigm in developing banking economies.

There were moderate findings on the second hypothesis regarding demographic characteristics: while age and education moderated the relationship between service quality and satisfaction measures, income and gender did not, partially confirming the hypothesis, with implications that demographic influences may be more complex than originally hypothesized.

5.1. Practical Recommendations

There are a number of recommendations arising from this study for Iraqi banks. First, banks should proactively encourage their customers to use internet banking by conducting education and awareness initiatives that promote the benefits of online banking and digital services. Second, banks should consider moving beyond the basic provision of transferring money to offering a range of services to ensure convenience and usability for customers, which could include paying loans, providing insurance services, and offering bank guarantees. Third, banks should invest in technology infrastructure to improve service speed and dependability by providing solutions to systemic challenges

and roadblocks. Fourth, accessibility for all customer groups should be prioritized through improved connectivity of point-of-sale terminals, troubleshooting infrastructure, and training users on how to better utilize the systems and services offered by the bank.

5.2. Research and Policy Implications

This study's results hold important implications for other Islamic emerging economies undergoing similar digital banking transformations. These economies can utilize the evidence-based findings to support their goal of financial digitization while avoiding missteps that could incur significant costs in terms of time and resources. The identified hierarchy of service quality dimensions, where security, speed, and control dominate the peripheral features, provides a rational basis for resource allocation, especially in contexts with limited infrastructure. Furthermore, the demographic findings offer actionable insights; priority should be given to implementing digital literacy programs for older populations, and service interfaces should be designed with multiple tiers of service to accommodate varying levels of customer education, as these factors directly influence satisfaction outcomes. By validating the utility of the six service quality dimensions—security, speed, reliability, control, ease of use, and enjoyment—regulators in similar jurisdictions can begin to establish service standards that are culturally appropriate and aligned with both Sharia compliance and technological knowledge. This approach not only addresses the specific limitations identified in Iraq but also provides a transferable framework for other Islamic emerging markets facing economic instability, which may be driven by the urgent need for digitization to enable institutions to rebuild and adapt effectively.

While this study yielded important insights into the perceived drivers of customer satisfaction in the digital banking sector of Iraq, it is limited in a number of ways.

First, the choice of a purposive sampling process that utilizes a non-probability strategy will affect the wider generalizability of the findings to a broader banking population. The results reflect the views of users who currently engage in some form of internet banking and do not reflect the views of all potential customers.

Second, given this study is context-bound to Iraq, which systemically has a unique cultural, economic, and infrastructural landscape, this limits the ability to fully compare or verify with other national banking systems. At this point, the identified themes may reflect trust in the context of Iraq, the maturity of participants within institutional infrastructure, and simply the technology readiness specific to developing economies.

Acknowledging these limitations of the sample enables a grounded interpretation of the empirical findings and highlights the need for cross-country comparisons in future studies.

5.3. Future Research Directions

When considering research going forward, there will be significant research pathways, including examining how satisfaction with online banking leads to customer loyalty and the role that online trust variables, e-service use drivers, and government support play in shaping digital banking development.

With respect to methodology, the survey research strategy used in this study produced findings of importance, while recognizing that one must err on the side of caution in applying findings from one sample to other samples related to methodology and sampling issues. Practical limitations should also be acknowledged, as the study was limited to only collecting data on their specific customers rather than holistically considering the relationship established as assigned by the customer and the banks.

All practical recommendations and research considerations noted in the proposals above should help advance the development of the service quality experience. Minimizing the gap will enhance adoption in digital banking in a responsible manner, as was caveated earlier in the research.

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Institutional Review Board Statement: The study involved minimal risk and adhered to ethical guidelines for social science fieldwork. Formal approval from an Institutional Review Board was not required under the policies of University of Isfahan, Iran. Informed verbal consent was obtained from all participants, and all data were anonymized to ensure participant confidentiality.
Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
Competing Interests: The authors declare that they have no competing interests.
Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

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