pISSN: 1906 - 3296 © 2020 AU-GSB e-Journal.
eISSN: 2773 – 868x © 2021 AU-GSB e-Journal.
http://www.assumptionjournal.au.edu/index.php/AU-GSB/index

Factors Impacting on E-banking Service Quality and Loyalty for University Teachers in Baoshan, China

Yueqiang Zhang*

Received: January 29, 2024. Revised: March 14, 2024. Accepted: February 22, 2025.

Abstract

Purpose: This study explores the factors influencing the quality of e-banking services and loyalty among university teachers in Baoshan, China. The conceptual framework contains reliability, privacy and security, website design, customer service and support, service quality, trust, satisfaction, and loyalty. **Research Design, Data, and Methodology:** The research employed a quantitative approach, utilizing a questionnaire as the primary data collection tool. Before distribution 500 university teachers, the questionnaire underwent content validity and reliability testing through item-objective congruence and pilot tests. Data analysis involved Confirmatory Factor Analysis and Structural Equation Modeling to assess the model's goodness of fit and confirm causal relationships among variables for hypothesis testing. **Results:** The study revealed that the conceptual model effectively predicted the factors influencing e-banking service quality and loyalty for university teachers in Baoshan, China. Reliability, privacy and security, website design, and customer service and support emerged as four crucial antecedents of e-banking satisfaction. **Conclusions:** E-banking satisfaction was predominantly influenced by reliability, privacy and security, website design, and customer service and support. A comprehensive understanding of online banking and effective customer engagement with services emerge as essential in delivering banking services. Enhancing e-service quality can elevate customer contentment and foster increased usage of e-banking.

Keywords : Customer Service and Support, Service Quality, Trust, Satisfaction, Loyalty

JEL Classification Code: E44, F31, F37, G15

1. Introduction

According to Howcroft et al. (2002), the design and delivery of personal financial services are being significantly altered by Internet technologies. Customers of e-banking services may manage their bank accounts at any time and from any location, and they can easily access customized information content to compare services and make investment decisions. These and other benefits linked to Information drive the adoption of e-banking services. Because of its convenience and safety, more and more people use e-banking for business and online shopping. With the popularization of smart devices and 5G technology, e-banking has become part of the information age. As described by Tan and Teo (2000), in its initial stages, Information regarding banking services was made available through electronic banking. Many banking tasks can now be completed online, including checking accounts, downloading bank statements, ordering checks, paying bills, transferring money, managing fixed deposits, investing in stocks, and paying insurance premiums. Customers can benefit from the abundance of financial services it provides by feeling convenient and quick. Consumers may easily access various personalized banking services through e-banking, enabling banks to provide low-cost services to many consumers (Yoon & Steege, 2013). The bar graph

1*Yueqiang Zhang, School of Education, Baoshan University, Yunnan, China. Email: 2441728188@qq.com

reveals that the percentage of individuals using Internet banking has increased to 59%, up three percentage points from 2019, and the growth pace has slowed. According to the statistics above, the percentage of personal mobile banking users continues to rise rapidly by 8% in 2020. By 2020, 71% of mobile banking users were mobile, representing a 12% year-over-year increase. User penetration increased to 45% as the percentage of personal WeChat Bank users kept consistently increasing. In recent years, with the popularity of online banking, online banking has shown a trend of vertical development from online payment by individual consumers, transfer remittance, credit card payment, and other ways to enterprise user inquiry and transfer settlement, and the development trend is very positive.

With the further popularization and development of the Internet in China, more and more people begin to contact online shopping, so online banking is also highly developed, and college teachers are the mainstream of this group. The growth of online purchasing is subtly altering society's business structure and way of life. In Baoshan University, College teachers who use the bank on the net is higher than boys; girls share open college teachers accounted for 96.8% of the bank on the net; college teachers choose open the main reason Banks bank on the net school close bank outlets, the universal consumption level between 400-1400, use the bank on the net is mainly used to online shopping, pre-paid phone, transfer the remittance. College teachers believe that increasing the preferential policies of bank online banking can encourage more people to open online banking, and the placement of ATMs on campus is also the primary choice for college teachers to use bank products.

With the further popularization and development of the Internet in China, more and more people begin to contact online shopping, so online banking is also highly developed, and college teachers are the mainstream of this group. The growth of online purchasing is subtly altering society's business structure and way of life. At Baoshan University, teachers use e-banking mainly for shopping, transfer, and financial investment, and the convenience and safety of e-banking are mainly considered in the use process. The monthly transaction volume through electronic banking is about 4000-10,000, accounting for 91% of monthly consumption. That is to say, teachers' daily consumption is completed through online banking.

Just like Amin (2016) stated in the research, e-banking has unique characteristics compared to traditional banks. Customers can use electronic banking network terminals to accomplish a range of normally complicated banking procedures at any time, place, and cheaply. The Internet has numerous benefits for users, but it also has drawbacks because it lacks the human touch that financial institutions have. According to Zhang et al. (2016), customers are less committed to a single financial institution due to the Internet's ease of access to more and better options, which immediately increases competition and problems for banks. In order to ensure that they can provide clients with better service that satisfies their demands in the long run, banks and other financial institutions must maintain and deepen their ties with them. As a result, winning the loyalty of online customers has become a fundamental component of modern corporate strategy, and it is essential to understand the elements that influence customer loyalty. In a network setting (Bilgihan & Bujisic, 2015; Ribbink et al., 2004). For e-banking services, the two most important factors that can directly affect customer satisfaction and loyalty are the quality of the bank's service and the quality of the bank's maintenance of customer relationships. These two variables directly influence the experience and loyalty of the consumer. The quality of online services is the primary determinant of e-commerce in the competitive process. The quality of online services directly affects the customer's experience and determines how customers evaluate and judge the overall quality of the online service they receive (Amin, 2016). This study's primary goal is to learn more about how customer loyalty to e-banking is impacted by relationship quality and service quality, as well as how these two elements interact. At the same time, we also need to investigate whether this behavior will alter when consumers' fundamental characteristics, including social standing and wealth, change. Therefore, more experimental studies are needed to verify the relationship between them.

2. Literature Review

2.1 Reliability

From the study of Jabnoun and Khalifa (2005), reliability mainly refers to the reliability and accuracy of the bank in performing service functions. The bank's consumer confidence level is correlated with the industry's reliability. The quality of the service is higher the more trusted the bank is (Siddiqi, 2011). Yang and Jun (2002) discussed and investigated reliability in online service quality. E-banking's dependability is generally defined as its capacity and degree of accurately assisting clients in concluding commercial transactions using various electronic technologies. Three elements of the service-generating process are primarily concerned with reliability in electronic services. First, accessibility in providing error-free services; second, regularity in providing high-quality services; and third, accuracy in providing the promised services (Pakdil et al., 2012). Singh and Kaur (2013) pointed out that e-banking implements services based on the Web, the foundation of all high-quality electronic services is reliability, and the viability and stability of the company define the service's

quality. The most crucial thing for consumers to do, especially in a network environment where all services are provided via a network, is to verify that all information and services are trustworthy and safe. (Sokhaei & Afshari, 2014). The dependability of e-banking is a key aspect determining the quality of e-banking services, according to our inquiry and research into e-banking client loyalty and satisfaction (Tan & Teo, 2000). From these studies, the following hypothesis has been formulated:

H1: Reliability has a significant impact on e-banking service quality.

2.2 Privacy and Security

Parasuraman et al. (2005) under the general category of privacy and security is safeguarding the secrecy of individual online identities (such as home addresses) and transactional data (such as credit card information). Security and privacy are not the same thing because privacy refers to a set of legal and moral standards for managing personal data, whereas security places more emphasis on protecting personal information during commercial transactions, emphasizing stability. Examples include mandating that customers be informed of the data gathered and the platform'splatform's intended uses. Technical guarantees that assure the efficient fulfillment of legal obligations and ethical standards linked to privacy are called security (Flavian & Guinaliu, 2006).

According to the study of Shankar and Jebarajakirthy (2019), clients will have faith in e-banking service providers if they can guarantee transaction security and safeguard their private information. Effective privacy and security rules for consumers are crucial for e-service providers. (Orel & Kara, 2014). Parasuraman et al. (2005). Pointed out that some platforms disclose and sell consumers' personal information for commercial purposes, which makes the use of e-banking face severe challenges, especially for some highly conservative consumers. With the continuous development of new technology, the ability to process information has been continuously enhanced. Coupled with its complexity, privacy has become increasingly important (Kelly & Erickson, 2005). From these studies, the following hypothesis has been formulated:

H2: Privacy and security have a significant impact on e-banking service quality.

2.3 Website design

Van Hove (2016) believed that information content, webpage interaction, index design, function setting, page design, website trust, and transaction security are the main components of website design. Karimov et al. (2011) confirmed that visual and content design are two categories in website design. A website's color scheme and layout are considered its visual design. The website's content and how users interact with it are called the content design. According to the analysis of Eastern Integrated Consumer Profile (2008), the caliber of website design is an extremely significant component influencing consumers' online shopping behavior. All facets of the services provided on the website need to be upgraded if they are to gain market share amid the intense competition. E-service providers are dedicated to giving consumers website design forms that may deliver accurate information, reduce search labor, and improve client engagement. (Kim et al., 2009). Lee and Kozar (2006) confirmed that convenient, efficient, safe, and reliable website design can improve customers' credibility in the e-commerce platform and promote customers' loyalty to the original online service providers. Customer satisfaction will significantly increase thanks to the new interactive e-banking website interface, encouraging users to utilize the service more frequently (Li & Yeh, 2010). From these studies, the following hypothesis has been formulated:

H3: Website design has a significant impact on e-banking service quality.

2.4 Customer Service and Support

Loiacono et al. (2002) described customer service and support as the time it takes for a customer to request anything from a website and receive a response via email or an order confirmation. Customer service and support in e-banking operators should promptly reply to service users' feedback and try to attract users' interest. When users' feedback is answered, and their needs are met promptly, it is helpful to improve users' satisfaction and loyalty (Ali & Raza, 2017). Shankar and Jebarajakirthy (2019) confirmed that when we have some problems in the process of handling business, we think the bank staff are more reliable, which is the E-banking customer service and support are characterized by their prompt response to any unusual conditions reported by users when using the e-banking service. (Lee & Kozar, 2006). Thaichon et al. (2014) stated that when using e-banking services, consumers with issues should seek professional assistance. Customers routinely seek technical support and services from banking providers, especially when e-banking businesses update their websites and technologies. Customers are more likely to trust an e-banking service platform, stay loyal to them, and promote their goods if they can promptly respond to customers' questions and successfully resolve any issues they may have (Blut et al., 2015). According to the research of Black et al. (2014), the services and assistance offered by e-banking should be less technical in order to fulfill the expectations of customers due to their various needs. From these studies, the following hypothesis has been formulated:

H4: Customer service and support have a significant impact on e-banking service quality.

2.5 E-banking Service Quality

de Ruyter et al. (2001) described e-services as "content-centric, Internet-based customer service forms that are driven by customers and aim to strengthen relationships with customer service providers." Now that the Internet has advanced, the "electronic service" idea has emerged. From previous studies, to measure customer satisfaction, we mainly have to refer to service quality (Abdul Kadir, 2011). Rust and Kannan (2003) stated that the idea of electronic banking services was born as the Internet expanded. In the beginning, banks started operating online because automation could save expenses. Many researchers have comprehensive definitions of the quality of an electronic service in their research. Customers' overall assessment and judgment of the bank's network service quality is their assessment of the quality of electronic banking services (Santos, 2003). According to Jun and Cai (2001), the term "EBSQ" has been used frequently in literature during the past ten years, and it is described as the measurement of customer satisfaction with the bank's electronic services. More and more academics worldwide concur with this idea (Ahmad Al-Hawari, 2015; Amin, 2016; Ayo et al., 2016; Herington & Weaven, 2009; Jayawardhena, 2004; Jun & Cai, 2001). From these studies, the following hypothesis has been formulated:
H5: E-banking service quality has a significant impact on e-banking satisfaction.

2.6 Trust

According to Bauer et al. (2005), regarding the legitimacy of the information on the website, the security of the website, and the customer's view of how the bank provides the promised service, these concepts are referred to as trust. CustomerCustomer's confidence in online transactions or trading channels (Ribbink et al., 2004). Gefen et al. (2003) thought of trust as "Other individuals or organizations who expect to interact with them will not harm our interests because of our dependence or trust in them." The confident expectation that your vulnerability will not be exploited by the platform in the cyber risk environment "is a definition that fits well in the cyber environment (Akram et al., 2020). Previous research has stressed the importance of trust in boosting client loyalty. Consumer trust in banks directly correlates with consumer loyalty to various banks (Montazemi & Qahri-Saremi, 2015). According to Ridings et al. (2002), For e-banking compared to other e-services, the "trust transfer" from offline to online providers is less effective. Online transactions have long been viewed as requiring a high level of trust. Users of electronic banking services typically have a higher requirement for security due to the nature of financial services and the risks associated with the Internet. This is significant because consumers cannot be guaranteed that vendors will not participate in undesired opportunistic behavior like privacy invasion, improper use of credit card information, unfair pricing, or unauthorized transactions without genuine assurance (Reichheld & Schefter, 2000). From these studies, the following hypothesis has been formulated:
H6: Trust has a significant impact on e-banking satisfaction.

2.7 E-Banking Loyalty

Banks sustain customer loyalty in the context of e-banking mostly by resolving customer issues with online banking. If customers love using online banking, customer service is automatically enhanced to the standard they anticipate (Bhatty et al., 2001). Flavian and Guinaliu (2006) stated that loyalty can be considered a non-random behavior that manifests over time, depending on the customer's psychological processes and proximity to the brand commitment, specifically the customer's attitude and behavior. For e-banking service providers to succeed in the market competition, it is crucial to keep and grow their present customer base (Chen & Wang, 2016). According to Amin et al. (2013), Highly devoted clients frequently visit and recommend the website to others. Therefore, paying attention to online customers' loyalty to e-banking is crucial to maintaining customer relationships. Customer retention is crucial to the company's long-term success and sustainable growth (Flavian & Guinaliu, 2006). Aghdaie et al. (2015) confirmed that the quality of service substantially influences customer happiness and loyalty since they rise when banking system operation and information quality are significantly enhanced. From these studies, the following hypothesis has been formulated:
H7: E-banking satisfaction has a significant impact on e-banking loyalty.

2.8 E-Banking Satisfaction

The definition of e-banking service quality must consider the unique relationship between customers and banks since, in a certain sense, banks and consumers have numerous complex interactions complicated by the provision of multiple services. Ahmad Al-Hawari et al. (2009) defined the customer's overall evaluation of the product or service provider about their overall level of e-banking satisfaction. The emotional reaction of clients to the execution of a particular service feature may be categorized into two categories for electronic service satisfaction. The first category is the satisfaction level of a single transaction. The emotional component of recurring business is referred to by

the second category, cumulative outcomes or overall satisfaction (Cheng & Chan, 2009). Parasuraman et al. (1985) considered that the impact users have on an organization's total services is reflected in overall satisfaction, which is a crucial component of perceived service quality. At the same time, such satisfaction can also help to explain user loyalty. Two categories can be used to separate electronic services. One feature is referred to as transaction-specific service. This contentment is thought of as an emotional reaction to the ceremony. Instead, cumulative consequence or overall enjoyment refers to what happens over time due to repeated transactions (Shankar & Jebarajakirthy, 2019). According to Banerji (2012) research, if customers feel sustained satisfaction with online banking services, they will maintain good loyalty and return to the service in the future. This implies that clients more delighted with online banking services will have more secure and lasting relationships with the service and behave more obediently (Al-alak, 2014).

3. Research Methods and Materials

3.1 Research Framework

This study aims to examine the factors that influence the loyalty and happiness of Baoshan University teachers when they use electronic banking services. The two key theories used in the conceptual framework design are the Cognitive Motivational Relationship (CMR) theory and the Technology Acceptance Model (TAM). The researchers established the conceptual framework after examining the many relationships between the pertinent factors. Three important frameworks from earlier research supported its conceptual framework.

Regarding the conceptual framework, the researcher wanted to look into seven connections between these factors. Reliability and e-banking service quality were the first two factors to be correlated; reliability was an exogenous variable, and e-banking service quality was an endogenous variable. The second relationship was between privacy and security and e-banking service quality; privacy and security were exogenous variables, and e-banking service quality was endogenous. The third relationship was between website design and e-banking service quality; website design was an exogenous variable, and e-banking service quality was an endogenous variable. Customer service and support and the quality of the e-banking service were related in a fourth way; customer service and support were exogenous variables, while the quality of the e-banking service was an endogenous variable. The fifth relationship was the interaction between the exogenous variable of e-banking service quality and the endogenous variable of e-banking satisfaction. The sixth relationship was the interaction of the endogenous variable, e-banking satisfaction, and the exogenous variable, trust. The final link involved the interaction between the endogenous variable of e-banking loyalty and the exogenous variable of e-banking satisfaction. The research conceptual framework is proposed as follows: Figure 1.

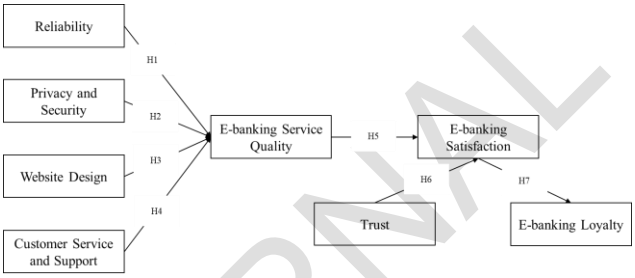

Figure 1: Conceptual Framework

H1: Reliability has a significant impact on e-banking service quality.
H2: Privacy and security have a significant impact on e-banking service quality.
H3: Website design has a significant impact on e-banking service quality.
H4: Customer service and support have a significant impact on e-banking service quality.
H5: E-banking service quality has a significant impact on e-banking satisfaction.
H6: Trust has a significant impact on e-banking satisfaction.
H7: E-banking satisfaction has a significant impact on e-banking loyalty.

3.2 Research Methodology

In this research, an empirical analysis and a quantitative method were employed. Sample data were gathered from the target population using a questionnaire as the primary tool. The questionnaire was distributed among university teachers in Baoshan, China, who had experience with e-banking. The survey consisted of three sections: a screening question, demographic information, and five-point Likert scale items for the variables.

To ensure the content validity of the research instrument, four specialists with Ph.D. degrees in education and nearly ten years of experience in providing blended instruction were invited to conduct item-objective congruence analysis, examining the objectives set by the scale items developer for this study passed at a score over 0.6. Following the recommendations of Isaac and Michael (1995), a pilot test with 30 participants was conducted to establish an appropriate scale. The researcher selected 30 target teachers for the pilot test and assessed internal consistency reliability using Cronbach's Alpha coefficient. Cronbach's Alpha produced a

score of 0.7 and above, signifying the reliable measurement of the intended construct and bolstering the overall reliability of the test results (George & Mallery, 2003).

After the pilot test, in-person questionnaires were distributed to 500 participants from the target university. Data was analyzed using statistical software. Confirmatory Factor Analysis (CFA) was employed to scrutinize factor loading, t-value, composite reliability (CR), average variance extracted (AVE), and discriminant validity. Structural Equation Modeling (SEM) was utilized to validate the hypothesis results and investigate the direct, indirect, and total effects of the relationships between latent variables (Hair et al., 2010).

3.3 Population and Sample Size

This study focuses on teachers in Baoshan, China, who possess over one year of e-banking experience, ensuring participants' familiarity with the e-banking context. Utilizing the A-priori Sample Size Calculator for Structural Equation Modeling (SEM) developed by Soper (2006), the recommended minimum sample size, determined by eight latent variables and 33 observed variables at a probability level 0.05 was 444. Consequently, 500 questionnaires were distributed and screened for valid responses.

3.4 Sampling Technique

The sample was chosen through a combination of multistage sampling techniques, including judgment sampling, stratified random sampling, and convenient sampling. Judgment sampling was employed to identify teachers in Baoshan, China, and subsequently, stratified random sampling was used to determine the sample size from each stratum, as illustrated in Table 1.

Table 1: Sample Units and Sample Size

Type of Bank	Population Size	Proportional Sample Size
ICBC	236	128
CBC	411	224
ABC	272	148
Total	**919**	**500**

Source: Constructed by author

4. Results and Discussion

4.1 Demographic Information

The demographic profile of 500 respondents is presented in Table 2. The respondents are 278 females and 222 males, representing 55.60 percent and 44.40 percent, respectively.

Table 2: Demographic Profile

Demographic and General Data (N=500)		Frequency	Percentage
Gender	Male	222	44.4%
	Female	278	55.6%

4.2 Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) serves as a crucial initial step in Structural Equation Modeling (SEM) (Hair et al., 2010). CFA is instrumental in assessing variables' reliability and validity (Byrne, 2010). Convergent validity can be statistically gauged through various measures such as Cronbach's Alpha reliability, factor loading, average variance extracted (AVE), and composite reliability (CR) (Fornell & Larcker, 1981). A factor loading above 0.50 is considered significant (Hair et al., 1998).

In this study, the factor loadings of all individual items surpassed 0.50, with the majority exceeding 0.70 and ranging from 0.222 to 0.852, as outlined in Table 3. Composite reliability (CR) was deemed acceptable at values of 0.70 or higher, and average variance extracted (AVE) was recommended to be greater than or equal to 0.4 (Fornell & Larcker, 1981; Hair et al., 1998). In Table 3, all estimates were noteworthy, as CR values exceeded 0.7, and AVE values surpassed 0.5.

Cronbach's alpha was employed to assess the internal consistency of items within a construct (Killingsworth et al., 2016). To indicate acceptable reliability, the value of Cronbach's alpha should be at 0.7 or higher (George & Mallery, 2003; Hair et al., 2010). As presented in Table 3, all Cronbach's Alpha values exceeded 0.7.

Table 3: Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Variables	Source of Questionnaire (Measurement Indicator)	No. of Item	Cronbach's Alpha	Factors Loading	CR	AVE
Reliability (R)	Amit and Charles (2018)	4	0.835	0.698-0.824	0.836	0.562
Privacy and Security (PS)	Amit and Charles (2018)	4	0.707	0.214-0.831	0.751	0.465
Website Design (WD)	Amit and Charles (2018)	4	0.842	0.692-0.827	0.845	0.578
Customer Service and Support (CSS)	Amit and Charles (2018)	5	0.872	0.693-0.833	0.873	0.581
Trust (T)	Amit and Charles (2018)	4	0.861	0.728-0.859	0.862	0.611
E-banking Service Quality (EBSQ)	Garepasha and Aali (2020)	4	0.848	0.728-0.778	0.848	0.583
E-banking Satisfaction (EBS)	Haq and Awan (2020)	4	0.883	0.787-0.825	0.884	0.656
E-banking Loyalty (EBL)	Inzamam and Adil Tahir (2020)	4	0.848	0.658-0.854	0.849	0.587

Table 4 presents indicators of the goodness of fit. The measurement utilized indices such as CMIN/DF, GFI, AGFI, NFI, CFI, TLI, and RMSEA. All statistical values derived from Confirmatory Factor Analysis (CFA) surpassed acceptable thresholds, confirming the adequacy of the fit for the measurement model.

Table 4: Goodness of Fit for Measurement Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/DF	< 5.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	1.791
GFI	≥ 0.85 (Sica & Ghisi , 2007)	0.914
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.896
NFI	≥ 0.80 (Wu & Wang, 2006)	0.898
CFI	≥ 0.80 (Bentler, 1990)	0.952
TLI	≥ 0.80 (Sharma et al., 2005)	0.945
RMSEA	< 0.08 (Pedroso et al., 2016)	0.040
Model Summary		**Acceptable Model Fit**

Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = Goodness-of-fit index, AGFI = Adjusted goodness-of-fit index, NFI = Normed fit index, CFI = Comparative fit index, TLI = Tucker-Lewis index and RMSEA = Root mean square error of approximation

Table 5 indicates satisfactory discriminant validity. Significance was observed across all variables, with the square roots of Average Variance Extracted (AVE) values being greater than the corresponding factor correlations.

Table 5: Discriminant Validity

	R	PS	WD	CSS	T	EBSQ	EBS	EBL
R	**0.750**							
PS	0.168	**0.682**						
WD	0.132	0.187	**0.760**					
CSS	0.152	0.268	0.110	**0.762**				
T	0.185	0.237	0.186	0.194	**0.782**			
EBSQ	0.243	0.391	0.337	0.216	0.241	**0.764**		
EBS	0.253	0.483	0.214	0.319	0.318	0.403	**0.810**	
EBL	-0.054	0.014	-0.044	-0.068	-0.022	-0.04	0.161	**0.766**

Note: The diagonally listed value is the AVE square roots of the variables
Source: Created by the author.

4.3 Structural Equation Model (SEM)

This study adopted a Structural Equation Model (SEM) to analyze the collected data. The strengths of SEM include various aspects. First, SEM could explore dependent relationships (Hair et al., 2010). Secondly, SEM examined the causal relationships among latent and observed variables. Third, random error in the observed variables was used to provide more accurate measurement results. Fourth, it used multiple indicators to measure latent variables. Lastly, it could test hypotheses at the construct level, not only at the item level (Hoyle, 2011).

The goodness of fit for the structural model was measured and demonstrated in Table 6. The statistical values were CMIN/DF = 2.093, GFI = 0.891, AGFI = 0.874, NFI=0.875, CFI = 0.930, TLI = 0.924, and RMSEA = 0.047. All values from fit indices were greater than the acceptable values, so they affirmed the model fitness.

Table 6: Goodness of Fit for Structural Model

Index	Acceptable	Statistical Values
CMIN/DF	< 5.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	2.093
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.891
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.874
NFI	≥ 0.80 (Wu & Wang, 2006)	0.875
CFI	≥ 0.80 (Bentler, 1990)	0.930
TLI	≥ 0.80 (Sharma et al., 2005)	0.924
RMSEA	< 0.08 (Pedroso et al., 2016)	0.047
Model Summary		**Acceptable Model Fit**

Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = Goodness-of-fit index, AGFI = Adjusted goodness-of-fit index, NFI = Normed fit index, CFI = Comparative fit index, TLI = Tucker-Lewis index and RMSEA = Root mean square error of approximation

4.4 Research Hypothesis Testing Result

The correlation magnitude among the independent and dependent variables proposed in the hypothesis is measured by regression coefficients or standardized path coefficients.

Table 7: Hypothesis Results of the Structural Equation Modeling

Hypothesis	(β)	t-value	Result
H1: R→EBSQ	0.202	4.124*	Support
H2: PS→EBSQ	0.357	6.866*	Support
H3: WD→EBSQ	0.307	6.013*	Support
H4: CSS→EBSQ	0.135	2.855*	Support
H5: EBSQ→EBS	0.418	8.037*	Support
H6: T→EBS	0.257	5.343*	Support
H7: EBS→EBL	0.171	3.334*	Support

Note: * p<0.05
Source: Created by the author

As presented in Table 7, all the proposed hypotheses were supported. Teachers' E-banking satisfaction strongly impacted E-banking loyalty. The teachers' E-banking satisfaction was significantly driven by E-banking service quality and Trust, respectively. The E-banking service quality was significantly driven by Reliability, Privacy and security, Website design, and Customer service and support, respectively. The path relationship between reliability and e-banking service quality has a standardized path coefficient of 0.202 and a t value of 4.124 in H1. The relationship between privacy and security and E-banking service quality has a standardized path coefficient of 0.357 and a t value of 6.866 in H2. The relationship between website design and e-banking service quality has a standardized path coefficient of 0.307 and a t value 6.013 in

H3. The path relationship between customer service and support and e-banking service quality has a standardized path coefficient of 0.135 and a t value of 2.855 in H4. The relationship between E-banking service quality and t eachers' E-banking satisfaction has a standardized path c oefficient of 0.418 and a t value of 8.037 in H5. The rel ationship between trust and teachers' e-banking satisfacti on has a standardized path coefficient of 0.257 and a t v alue of 5.343 in H6. The relationship between teachers' E-banking satisfaction and E-banking loyalty has a stand ardized path coefficient of 0.171 and a t value of 3.334 in H7.

5. Conclusion and Recommendation

5.1 Conclusion and Discussion

This study aimed to comprehensively analyze the factors influencing e-banking service quality and loyalty for university teachers in Baoshan, China. The findings were verified through structural equation modeling (SEM) and confirmatory factor analysis (CFA). The dimensions studied included customer happiness, client trust in the bank, and other elements affecting client loyalty. The study also considered aspects such as software configuration, website layout, dependability, security, and user-friendliness of the bank, contributing to overall service quality.

The implications of this research are twofold. Firstly, the study benefits front-line e-banking service practitioners by providing insights that can inform the creation of more tailored service content and methods aligned with factors influencing customer loyalty. This, in turn, can enhance customer scale and loyalty in e-banking. Secondly, the findings guide e-banking management, suggesting creating systems better suited to customer needs, removing outdated software and hardware, and introducing new service content to enhance loyalty and attract new users.

Using collected data, confirmatory factor analysis (CFA) was employed to measure and test the validity and reliability of the research conceptual model. Structural equation modeling (SEM) was also utilized to analyze and discuss the factors impacting e-banking service quality and loyalty for university teachers in Baoshan, China. All proposed hypotheses were supported, fulfilling the research objectives. The key findings are: The conceptual model successfully predicted factors influencing e-banking service quality and loyalty for university teachers in Baoshan, China. Reliability, Privacy and security, Website design, and Customer service and support emerged as the most significant factors affecting e-banking service quality, student satisfaction, and loyalty. E-banking service quality and Trust were the strongest predictors of teachers' e-banking satisfaction, both directly and indirectly.

Consequently, these research findings can guide Chinese local governments and financial departments in crafting e-banking development and supervision regulations. This promotes the growth of electronic banking businesses and effectively safeguards user interests, providing valuable reference points for various network services.

5.2 Recommendation

This study underscores the significance of E-banking service quality as the primary predictor of teachers' E-banking satisfaction, both directly and indirectly. The robust influence of E-banking service quality is notably driven by Reliability, Privacy and security, Website design, and Customer service and support. This observation suggests that teachers opt for E-banking based on the compelling impacts of Reliability, Privacy and security, Website design, and Customer service and support.

However, certain limitations were imposed on the study's implementation to ensure relevance and focus. The study's findings reveal that consumer loyalty to e-banking services is directly influenced by customer satisfaction, with dependability, responsiveness, tailored demand, efficiency, and other characteristics serving as pivotal determinants of customer satisfaction in the context of e-banking services.

According to the survey's outcomes, customer development hinges on service quality, making it a crucial aspect of every community. A comprehensive understanding of online banking and effective customer engagement with services emerge as essential in delivering banking services. Enhancing e-service quality can elevate customer contentment and foster increased usage of e-banking.

Furthermore, the study identifies key factors determining the quality of an e-service, including the competence of support staff, system accessibility, service integration, responsiveness, and reliability. These findings align with empirical evidence indicating that the quality of e-services has a positive impact on consumer happiness, as demonstrated in previous research (Chu et al., 2012).

5.3 Limitation and Further Study

This study has certain limitations that warrant acknowledgment, and the following recommendations are proposed for future research. Firstly, the study is confined to Baoshan University, resulting in a small sample size due to its highly targeted nature, thus limiting the scope and size of the study. Additionally, the research framework encompasses only two models, the TAM and the CMR models, needing a multifaceted exploration from various perspectives. Furthermore, amalgamating the study's variables with the existing literature raises concerns about the appropriateness

of variable settings. Future research endeavors could enhance these aspects by broadening the study's geographical scope or including diverse demographic groups, such as different age brackets, among other potential improvements.

References

Abdul Kadir, H. (2011). Impacts of service quality on customer satisfaction: study of online banking and ATM services in Malaysia. *Int. J. Trade. Econ. Fin., 2*(1), 1-9. https://doi.org/10.7763/ijtef.2011.v2.71

Aghdaie, S. F. A., Karimi, R., & Abasaltian, A. (2015). The evaluation of effect electronic banking in customer satisfaction and loyalty. *International Journal of Marketing Studies, 7*(2), 90. https://doi.org/10.5539/ijms.v7n2p90

Ahmad Al-Hawari, M. (2015). How the personality of retail bank customers interferes with the relationship between service quality and loyalty. *International Journal of Bank Marketing, 33*(1), 41-57. https://doi.org/10.1108/ijbm-09-2013-0096

Ahmad Al-Hawari, M., Ward, T., & Newby, L. (2009). The relationship between service quality and retention within the automated and traditional contexts of retail banking. *Journal of Services Management, 20*(4), 455-472. https://doi.org/10.1108/09564230910978539

Akram, G., Samad, A., Ali, R. B., Zendeh, A., & Soleyman, D. (2020). Iranzadeh Relationship dynamics in customer loyalty to online banking services. *Journal of Islamic Marketing, 12*(4), 830-863.

Al-alak, B. A. (2014). Impact of marketing activities on relationship quality in the Malaysian banking sector. *Journal of Retailing and Consumer Services, 21*(3), 347-356. https://doi.org/10.1016/j.jretconser.2013.07.001

Ali, M., & Raza, S. A. (2017). Service quality perception and customer satisfaction in Islamic banks of Pakistan: the modified SERVQUAL model. *Total Quality Management and Business Excellence, 28*(5-6), 559-577. https://doi.org/10.1080/14783363.2015.1100517

Al-Mamary, Y. H., & Shamsuddin, A. (2015). Testing of the Technology Acceptance Model in Context of Yemen. *Mediterranean Journal of Social Sciences, 6*(4), 268-273. https://doi.org/10.5901/mjss.2015.v6n4s1p268

Amin, M. (2016). Internet banking service quality and its implication on e-customer satisfaction and e-customer loyalty. *International Journal of Bank Marketing, 34*(3), 280-306. https://doi.org/10.1108/ijbm-10-2014-0139

Amin, M., Isa, Z., & Fontaine, R. (2013). Islamic banks: contrasting the drivers of customer satisfaction on image, trust, and loyalty of Muslim and non-Muslim customers in Malaysia. *International Journal of Bank Marketing, 31*(2), 79-97.

Amit, S., & Charles, J. (2018). The influence of e-banking service quality on customer loyalty A moderated mediation approach. *International Journal of Bank Marketing, 37*(5), 1119-1142.

Awang, Z. (2012). *Structural equation modeling using AMOS graphic* (1st ed.). Penerbit Universiti Teknologi MARA.

Ayo, C. K., Oni, A. A., Adewoye, O. J., & Eweoya, I. O. (2016). E-banking users' behavior: e-service quality, attitude, and customer satisfaction. *International Journal of Bank Marketing, 34*(3), 347-367. https://doi.org/10.1108/ijbm-12-2014-0175

Banerji, N. (2012). A comparative study of customers perceptions of service quality dimensions between public and private banks in India. *International Journal of Business Administration, 3*(5), 34.

Bauer, H., Stuart, J. B., Tina, R., & Marcus, M. N. (2005). Driving Consumer Acceptance of Mobile Marketing: A Theoretical Framework and Empirical Study. *Journal of Electronic Commerce Research, 6*(3), 181-191

Bentler, P. M. (1990). *Comparative fit indexes in structural models* (1st ed.). Psychological

Bhatty, M., Skinkle, R., & Spalding, T. (2001). Redefining customer loyalty, the customer's way. *Ivey Business Journal, 65*(3), 13.

Bilgihan, A., & Bujisic, M. (2015). The effect of website features in online relationship marketing: a case of online hotel booking. *Electronic Commerce Research and Applications, 14*(4), 222-232. https://doi.org/10.1016/j.elerap.2014.09.001

Black, H. G., Childers, C. Y., & Vincent, L. H. (2014). Service characteristics' impact on key service quality relationships: a meta-analysis. *Journal of Services Marketing, 28*(4), 276-291

Blut, M., Frennea, C. M., Mittal, V., & Mothersbaugh, D. L. (2015). How procedural, financial, and relational switching costs affect customer satisfaction, repurchase intentions, and repurchase behavior: a meta-analysis. *International Journal of Research in Marketing, 32*(2), 226-229. https://doi.org/10.1016/j.ijresmar.2015.01.001

Byrne, B. M. (2010). *Structural Equation Modeling with Amos: Basic Concepts, Applications, and Programming* (2nd ed.). Taylor and Francis Group.

Chen, C. F., & Wang, J. P. (2016). Customer participation, value co-creation and customer loyalty e a case of airline online check-in system. *Computers in Human Behavior, 62,* 346-352. https://doi.org/10.1016/j.chb.2016.04.010

Cheng, H., & Chan, S. (2009). Consumer perception of interface quality, security and loyalty in electronic commerce. *Journal of Information and Management, 46*(1), 411-417.

Chu, P., Lee, G., & Chao, C. H. (2012). Service quality, customer satisfaction, customer trust, and loyalty in an e-banking context. *Social Behavior and Personality, 40*(8), 1271-1284. https://doi.org/10.2224/sbp.2012.40.8.1271

de Ruyter, K., Wetzels, M., & Kleijnen, M. (2001). Customer adoption of e-service: an experimental study. *International Journal of Service Industry Management, 12*(2), 184-207. https://doi.org/10.1108/09564230110387542

Eastern Integrated Consumer Profile (EICP). (2008, October 12). *Factors influencing the behavior of electronic shopping.* www.bnext.com.tw/StoreView568

Flavian, C., & Guinaliu, M. (2006). Consumer trust, perceived security, and privacy policy Three basic elements of loyalty to a web site. *Consumer trust and privacy policy, 106*(5/6), 601-620.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research, 18*(1), 39-50. https://doi.org/10.1177/002224378101800104

Garepasha, A., & Aali, S. (2020). Dynamics of Online Relationship Marketing: Relationship Quality and Customer Loyalty in Iranian banks. *Review of Business Management, 22*(1), 140-162. https://doi.org/10.7819/rbgn.v22i1.4043

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Inexperience and experience with online stores: the importance of TAM and trust. *IEEE Transactions on Engineering Management, 50*(3), 307-321. https://doi.org/10.1109/tem.2003.817277

George, D., & Mallery, P. (2003). *SPSS for Windows Step by Step: A Simple Guide and Reference. 11.0 Update* (4th ed.). Allyn & Bacon.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate Data Analysis* (1st ed.). Prentice-Hall.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (2010). *Multivariate Data Analysis* (6th ed.). Prentice Hall.

Haq, I., & Awan, T. (2020). Impact of e-banking service quality on e-loyalty in pandemic times through interplay of e-satisfaction. *Vilakshan - XIMB Journal of Management, 17*(1/2), 39-55. https://doi.org/10.1108/xjm-07-2020-0039

Herington, C., & Weaven, S. (2009). E-retailing by banks: e-service quality and its importance to customer satisfaction. *European Journal of Marketing, 43*(9/10), 1220-1231. https://doi.org/10.1108/03090560910976456

Howcroft, B., Hamilton, R., & Hewer, P. (2002). Consumer attitude and the usage and adoption of home-based banking in the United Kingdom. *International Journal of Bank Marketing, 20*(3), 111-121. https://doi.org/10.1108/02652320210424205

Hoyle, R. H. (2011). *Structural equation modeling for social and personality psychology* (1st ed.). Sage.

Inzamam, U. Q., & Adil Tahir, P. (2020). A multiple parallel mediation between transformational leadership and project-based performance -A process model," International Journal of Financial Engineering (IJFE). *World Scientific Publishing, 7*(3), 1-23.

Isaac, S., & Michael, W. B. (1995). *Handbook in research and evaluation: A collection of principles, methods, and strategies useful in the planning, design, and evaluation of studies in education and the behavioral sciences* (3rd ed.). EdITS Publishers.

Jabnoun, N., & Khalifa, A. (2005). A customized measure of service quality in the UAE. *Managing Service Quality, 15*(4), 374-388. https://doi.org/10.1108/09604520510606844

Jayawardhena, C. (2004). Measurement of service quality in internet banking: the development of an instrument. *Journal of Marketing Management, 20*(1-2), 185-207. https://doi.org/10.1362/026725704773041177

Jun, M., & Cai, S. (2001). The key determinants of internet banking service quality: a content analysis. *International Journal of Bank Marketing, 19*(7), 276-291. https://doi.org/10.1108/02652320110409825

Karimov, F. P., Brengman, M., & Van Hove, L. (2011). The effect of website design dimensions on initial trust: a synthesis of the empirical literature. *Journal of Electronic Commerce Research, 12*(4), 272-301.

Kelly, E. P., & Erickson, E. G. (2005). RFID tags: commercial applications v. privacy rights. *Industrial Management & Data Systems, 105*(6), 703-713. https://doi.org/10.1108/02635570510606950

Killingsworth, B., Xue, Y., & Liu, Y. (2016). Factors influencing knowledge sharing among global virtual teams. *Team Performance Management*, *22*(5/6), 284-300. https://doi.org/10.1108/TPM-10-2015-0042

Kim, J., Jin, B., & Swinney, J. L. (2009). The role of entail quality, e-satisfaction, and e-trust in online loyalty development process. *Journal of Retailing and Consumer Services, 16*(4), 239-247. https://doi.org/10.1016/j.jretconser.2008.11.019

Lee, Y., & Kozar, K. A. (2006). Investigating the effect of website quality on e-business success: an analytic hierarchy process (AHP) approach. *Decision Support Systems, 42*(3), 1383-1401. https://doi.org/10.1016/j.dss.2005.11.005

Li, Y. M., & Yeh, Y. S. (2010). Increasing trust in mobile commerce through design aesthetics. *Computers in Human Behavior, 26*(4), 673-684. https://doi.org/10.1016/j.chb.2010.01.004

Loiacono, E. T., Watson, R. T., & Goodhue, D. L. (2002). WebQual: a measure of Web site quality. Proceedings of the AMA Winter Educators. *American Marketing Association, 1*(2), 432-438.

Montazemi, A. R., & Qahri-Saremi, H. (2015). Factors affecting adoption of online banking: a meta-analytic structural equation modeling study. *Information & Management, 52*(2), 210-226. https://doi.org/10.1016/j.im.2014.11.002

Orel, F. D., & Kara, A. (2014). Supermarket self-checkout service quality. *Customer and Consumer Services, 21*(2), 118-129.

Pakdil, F., Işın, F. B., & Genç, H. (2012). A quality function deployment application using qualitative and quantitative analysis in after sales services. *Total Quality Management & Business Excellence, 23*(11-12), 1397-1411. https://doi.org/10.1080/14783363.2012.715797

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing, 49*(4), 41-50. https://doi.org/10.1177/002224298504900403

Parasuraman, A., Zeithaml, V. A., & Malhotra, A. M. (2005). E-S-QUAL: a multiple-item scale for assessing electronic service quality. *Journal of Service Research, 7*(3), 213-233.

Pedroso, R., Zanetello, L., Guimaraes, L., Pettenon, M., Goncalves, V., Scherer, J., Kessler, F., & Pechansky, F. (2016). Confirmatory factor analysis (CFA) of the crack use relapse scale (CURS). *Archives of Clinical Psychiatry, 43*(3), 37-40. https://doi.org/10.1590/0101-60830000000081

Reichheld, F. F., & Schefter, P. (2000). E-loyalty: your secret weapon on the web. *Harvard Business Review, 78*(4), 105-113.

Ribbink, D., van Riel, A. C. R., Liljander, V., & Streukens, S. (2004). Comfort your online customer: quality, trust, and loyalty on the internet. *Managing Service Quality: An International Journal, 14*(6), 446-456. https://doi.org/10.1108/09604520410569784

Ridings, C. M., Gefen, D., & Arinze, B. (2002). Some antecedents and effects of trust in virtual communities. *Journal of Strategic Information Systems, 11*(3-4), 271-295. https://doi.org/10.1016/s0963-8687(02)00021-5

Rust, R. T., & Kannan, P. K. (2003). E-service: a new paradigm for business in the electronic environment. *Communications of the ACM, 46*(6), 37-42.

Santos, J. (2003). E-service quality: a model of virtual service quality dimensions. *Managing Service Quality, 13*(3), 233-246. https://doi.org/10.1108/09604520310476490

Shankar, A., & Jebarajakirthy, C. (2019). The influence of e-banking service quality on customer loyalty. *International Journal of Bank Marketing, 37*(5), 1119-1142. https://doi.org/10.1108/ijbm-03-2018-0063

Sharma, G. P., Verma, R. C., & Pathare, P. (2005). Mathematical modeling of infrared radiation thin layer drying of onion slices. *Journal of Food Engineering, 71*(3), 282-286. https://doi.org/10.1016/j.jfoodeng.2005.02.010

Sica, C., & Ghisi, M. (2007). The Italian versions of the Beck Anxiety Inventory and the Beck Depression Inventory-II: Psychometric properties and discriminant power. In M. A. Lange (Ed.), *Leading-edge psychological tests and testing research* (pp. 27-50). Nova Science Publishers.

Siddiqi, K. O. (2011). Interrelations between service quality attributes, customer satisfaction and customer loyalty in the retail banking sector in Bangladesh. *International Journal of Business and Management, 6*(3), 1-10. https://doi.org/10.5539/ijbm.v6n3p12

Singh, J., & Kaur, P. (2013). Customer attitude towards technology-based services provided by select Indian banks: empirical analysis. *International Journal of Commerce and Management, 23*(1), 56-68. https://doi.org/10.1108/10569211311301439

Sokhaei, S. F., & Afshari, A. J. (2014). The impact of service quality on customer satisfaction in internet banking. *The Journal of Mathematics and Computer Science, 9*(1), 31-40. https://doi.org/10.22436/jmcs.09.01.04

Soper, D. (2006). *Calculator: A-priori Sample Size for Structural Equation Models.* https://www.danielsoper.com/statcalc/calculator.aspx?id=89

Tan, M., & Teo, T. S. H. (2000). Factors influencing the adoption of internet banking. *Journal of the Association for Information Systems, 1*(5), 1-44. https://doi.org/10.17705/1jais.00005

Thaichon, P., Lobo, A., Prentice, C., & Quach, T. N. (2014). The development of service quality dimensions for internet service providers: retaining customers of different usage patterns. *Journal of Retailing and Consumer Services, 21*(6), 1047-1058. https://doi.org/10.1016/j.jretconser.2014.06.006

Van Hove, L. (2016). Cross-cultural user perceptions of website design and security: a commentary. *Electronic Commerce Research and Applications, 19,* 86-90. https://doi.org/10.1016/j.elerap.2016.05.003

Wu, J. H., & Wang, Y. M. (2006). Measuring KMS success: A specification of the DeLone and McLean's model. *Information and Management, 43*(6), 728-739. https://doi.org/10.1016/j.im.2006.05.002

Yang, Z., & Jun, M. (2002). Consumer perception of e-service quality: from internet purchaser and non-purchaser perspectives. *Journal of Business Strategies, 19*(1), 19-41. https://doi.org/10.54155/jbs.25.2.59-84

Yoon, H. S., & Steege, L. M. B. (2013). Development of a quantitative model of the impact of customers' personality and perceptions on Internet banking use. *Computers in Human Behavior, 29*(3), 1133-1141. https://doi.org/10.1016/j.chb.2012.10.005

Zhang, R., Li, G., Wang, Z., & Wang, H. (2016). Relationship value based on customer equity influences on online group-buying customer loyalty. *Journal of Business Research, 69*(9), 3820-3826. https://doi.org/10.1016/j.jbusres.2015.12.074