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Impact of E-Banking on Service Quality in Nepalese Commercial Banks

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Abstract
The advent of electronic banking has brought significant changes to the banking industry by altering the ways of financial services. This study examines the impact of e-Banking on service quality in Nepalese commercial banks. It investigates the evolving scenario of e-banking services in Nepal, where traditional brick-and-mortar banking has been progressively complemented and even replaced by digital platforms. The study employs a comprehensive methodology, combining quantitative analysis and customer perception surveys to assess how the adoption of e-banking practices influences the perceived service quality offered by commercial banks in Nepal. The findings highlight both the positive and negative aspects of this transition, considering factors such as tangibility, reliability, assurance, empathy and responsiveness interactions. This research contributes to the understanding of how e-banking is reshaping customer expectations and experiences within the Nepalese banking sector, offering insights that can guide banks in enhancing their e-banking services while maintaining a high standard of service quality. As Nepal navigates its digital transformation journey, the implications of this study are crucial for banks aiming to effectively align their strategies with the evolving preferences of their customers in the field of e-banking.

Key words*: E-banking, Service Quality, Tangibility, Reliability, Assurance*

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I. INTRODUCTION

Due to the advancement of technology in the financial services industry, the ways of delivering the services to itscustomers has been changed drastically in the recent times(Khera etal., 2022). The adoption of technological invention over the last two decades in the field of financial services has been drastically altering the ways of operating the businesses by eliminating the geographical, regulatory, and industrial barriers (Zafar etal.2011). The maturity of the banks isespousing and use of electronic banking services for the financial deals of itscustomers (Chauhan etal., 2022; Singh, 2023). This technological invention has also changed the service modality in the field of banking sectors by creating value for both banks andcustomers, that it enablescustomers to perform banking transactions without having to visit a physical bank(Khan, 2017). These technologicalinventions of e-banking products include internet banking, mobile banking, automated teller machines(ATMs), POS (point of sales) and any online banking services popularly appertained to e-Banking(Khan, 2017).

Electronic banking, generally appertained to as e-banking, is a ultramodern financial service that leverages digital technologies to enable individuals, businesses, and institutions to conduct a wide range of banking activities through electronic channels. E-banking has revolutionized the traditional banking model byfurnishing accessible, efficient and convenient alternatives to traditional in personal and institutional banking transactions.

Thismetamorphosis allowsusers to access theirfinancial services anytime and anywhere, fostering lesser inflexibility and availability in managing their finances(Pikkarainen etal., 2004; Sadi & Muhanna, 2013). E-banking encompasses a different set of online platforms and tools that grease colorful banking conditioning. These include online banking platforms, mobile banking operations, and internet grounded financial services. Through these channels, customers can perform tasks such as checking account balances, transferring fund between accounts, paying bills electronically, applying for loans, and managing investments. Also, e-banking frequently incorporates features like secure authentication mechanisms and encryption toinsure the confidentiality and security of sensitive financial information (Siau & Shen, 2003).

E-banking services provides the banking services to its customers electronically, either at their place of business or their own house(Singh, 2023). Electronic banking(e-Banking) istransforming the financial services industry by supporting growth, promotinginvention and enhancing competitiveness(Shamsuddoha,2008). E-Banking

provides retail and small- value banking products and services to thecustomers through electronic channels as well as large-value electronic payment system(Abid and Noreen 2006). E-Banking services has making enable to banking institutions tocontend more effectively in the globalterrain by extending their products and services beyond the restriction of time and space(Turban etal., 2018).

The banking and financialindustry has been more competitive in recent times, and banks areespousing unique tools and approaches to maintaincustomer retention and satisfaction. E-banking is the major tools for maintainingcustomer retention and customer satisfaction. The banking services have seen significant changes in theprevious 10 years as a result of the growth of a knowledge-based economy and society as information and communication technology hasbettered(Drigă& Isac, 2014). E-Banking has been extensively used in developed countries and isfleetly expanding in developing countries(Fekadu, 2019). Nowadays, a physical branch banking has been replaced bye-Banking, wherebycustomers cangain service through the internet from their homes or at work rather than physically visiting the branch of the bank (Drigă& Isac, 2014; Poon, 2008). Thismetamorphosis toe-service hashanded both banks andcustomers with several benefits,similar assubstantiated services,sale security, speed of processing transactions, and overall better service quality(Abdulfattah, 2012).

The global banking industry has experienced a paradigm shift with therapid-fire proliferation of electronic banking(e-banking), unnaturally altering the way financial services are delivered and experienced bycustomers (Liao & Cheung, 2002; Hsiao etal., 2019). E-banking encompasses a range of digital platforms, including online banking, mobile banking, and electronic fund transfers, enablingcustomers toaccess their accounts and conduct their financial transactions ever(Jayawardhena& Foley, 2000). In Nepal, as innumerous other countries, the bankinglandscape has been gradationally transitioning from traditionalbrick- and-mortar banking to afurther digitallyacquainted model. E-banking has gained traction due to its implicit to enhance convenience, availability, andeffectiveness forcustomers, while also reducingoperational costs for banks(Sharma etal., 2018; Subedi, 2019).

However, this shift has not been without challenges. Securityconcerns related to online transactions and dataprivacy have raised questions about the robustness ofe-banking systems(Soomro etal., 2016; Ghosh & Mukhopadhyay, 2020). Additionally, thesubstantiatedcustomerrelations that were commonplace in physical branches can be moregruelingto replicate in digitalsurroundings, potentially impactingcustomer satisfaction(Saha & Kar, 2019). Given this dynamic background, it becomespivotal toevaluate the impact ofe-banking on service quality within thecontext of Nepalesecommercial banks.As customer preferences evolve and technological advancements continue, understanding howe-banking practicesimpact the perceived service quality is consummate for banks seeking toacclimatize their strategies effectively(Ali & Ali, 2020). The mainobjective of this study is to examine the effect ofe-banking services tangibility, assurance, responsiveness, reliability and empathy in Nepalesecommercial banks.

II. LITERATUREREVIEW

Services are impalpable interactions between a service provider and a user of the service that affect thecondition of the users (Kimita etal., 2009). Early studies defined quality as a judgment resulting from an evaluation process in whichcustomers compare their exceptions with the service they perceive to haveentered(Gronroos, 1984). While a rising number of studies areshedding light on service quality,most of them define it based on acustomer's overallimpression of the product or service(Parasuraman etal., 1985, 2005).

Service quality is essential in the banking industry, since it ensures highlevels ofcustomers satisfaction, making it a key to competitive advantage(Almossawi, 2012). The quality of service is assessed, while it is provided in the serviceindustry(Parasuraman etal., 2005).Service quality, in the banking industry, can be defined as a measure of how well theposition of serviceprovided to its customers to meetstheir prospects, performing from a comparison betweencustomers'previousprospects about the service and their after-comprehensions of thefactual experience of service performance(Sewaka etal., 2023).

Parasuramanetal.(2005) developed theE-SQUAL model toanalyze the consumerperception of service quality in service and merchandisingenterprises.The conceptualization of service quality includes both the serviceoutcome and the service delivery process. As a result, the serviceoutcome is acustomer's assessment of the result of serviceproduct, whereas the service delivery process is concerned with how the process's ultimate impact is communicated to theusers of the services (Lehtinen & Lehtinen, 1991; Parasuraman etal., 1985).

Zavareh etal.(2012) indicated that effective andreliable services, fulfilment, security/ trust,point aesthetics, responsiveness/ contact, and ease of use have a significant positive relationship with customer satisfaction in internet banking. Hammoud etal.(2018) indicates thatreliability,effectiveness, ease of use, responsiveness, communication,security andprivacy have a significant impact on customer satisfaction, withreliability being the dimension with the strongest impact. Additionally, variablessuch as ease of use and

availabilityappreciatively affectedcustomers' satisfaction and maintained longstandingcustomerfidelity(Liebana-Cabanillas etal., 2013).

Shankar and Jebarajakirthy(2019)found that reliability along withprivacy and security are the strongest significant predictors ofcustomer satisfaction andloyalty. In line with this, other researchers also revealed that there is a statistically significant association between the service quality dimension andcustomer satisfaction concerninge-Banking services (Sharma etal., 2020). Mohamud(2017) indicated that there was a direct relationship between e-banking servicequalities, andthus, factorssuch as ease of use,utility and cost directlyimpact customer satisfaction. In addition, the study concluded that service qualityconfinessuch as security, aesthetics,reliability, responsiveness andeffectiveness shouldn't be overlooked in an attempt togain bettersatisfied customers.

Beshir and Zelalem(2020) indicated the effect of e-banking service quality oncustomer satisfaction andloyalty andfoundeffectiveness, responsiveness, easiness,privacy and commission to be significant predictors ofcustomer satisfaction at a 5percent of significance level. The results of the study also showed that customer satisfaction has a significant positive impact oncustomerloyalty.

Hoseini andDangoliani(2015) states thateffectiveness, fulfillment, system availability,privacy, assurance(trust), and service quality aesthetics impact customer satisfaction. Dsouza etal.(2018)found that six factors,such as value- added service, responsiveness, availability, services assured, bank charges, and convenience, weredirectimpacton customer satisfaction. likewise, Tetteh(2022)identified that thedimensions of service quality,namely convenience, ease of use, availability, and affordability werefound to be significant positivediverse ofcustomer satisfaction. The study alsofound thatcustomer satisfaction completely mediates the relationship between all four electronic banking service qualitydimensions andcustomerloyalty. In the sametone, the findings of Mwiya etal.(2022) indicate that security, websitetrait,privacy, responsiveness,effectiveness, fulfilment and reliability are indeed applicable to electronic service quality and they affectcustomer satisfactionpositively.

Sewaka etal.(2023)found the positive relationship between service quality,customer satisfaction, andcustomer loyalty intention among e-banking users. The results of this study demonstrated that there's a positive and significant relationship between service quality and customer satisfaction; service quality and customerloyalty; and customer satisfaction, and loyalty intention.

Service Quality in Nepalese Commercial Banks

Service quality in the Nepalese commercial banks refers to the extent to which banking services meet or exceed customers prospects, ensuring a high position of satisfaction and value for customers. It encompasses colorful confines that inclusively contribute to customers' comprehensions of the quality of service they admit from these financial institutions. The assessment of service quality in Nepalesecommercial banks can be analyzed by the lens of the SERVQUAL model, a extensivelyrecognizedframe developed by Parasuraman, Zeithaml, and Berry in the late 1980s. The model identifies fivekey dimensions thatinclusively shapecustomers' perception of service quality such as tangibility, reliability, responsiveness, assurance, and empathy. Applying the SERVQUAL model to theenvironment of Nepalese commercial banks providesperceptivity into the multidimensional nature of service quality.

Tangibility: Tangibles refer to the physical facilities, equipment, and appearance of personnel that influence customers' perceptions. In Nepalese commercial banks, this dimension encompasses the usability and aesthetics of online banking interfaces, mobile apps, and ATMs. The visual appeal and functionality of these digital platforms are integral to the service quality perception (Parasuraman et al., 1985).

H1: E-banking has a significant effect on tangibility in Nepalese commercial banks.

Reliability: Reliability pertains to the consistency and accuracy of services provided. In the Nepalese context, it entails the accurate execution of transactions, dependable online services, and timely updates of account information. The reliability dimension is particularly critical in the digital space, as any disruptions or errors can erode customers' trust and satisfaction (Parasuraman et al., 1988).

H2: E-banking has a significant effect on reliability in Nepalese commercial banks.

Responsiveness: Responsiveness involves the willingness and ability of bank staff to help customers and provide prompt service. In the digital realm, this translates to the effectiveness of online customer support, chatbots, and automated responses. Swift responses to customer queries and technical issues contribute to a positive service quality perception (Zeithaml et al., 1990).

H3: E-banking has a significant effect on responsiveness in Nepalese commercial banks.

Assurance: Assurance refers to the competence, courtesy, and credibility of service providers. In the context of Nepalese commercial banks, assurance extends to the perceived security and privacy of online transactions.

Effective authentication mechanisms, clear communication of security measures, and transparency in data handling contribute to this dimension (Parasuraman et al., 1991).

H4: E-banking has a significant effect on assurance in Nepalese commercial banks.

Empathy: Empathy encompasses the caring, individualized attention, and understanding that service providers extend to customers. While online interactions may seem less personalized, banks can enhance this dimension through personalized recommendations, tailored offers, and empathetic responses to customer concerns. Effective integration of personalized touches in digital interactions contributes to empathy in service quality (Zeithaml et al., 1996).

H5: E-banking has a significant effect on empathy in Nepalese commercial banks.

SERVQUAL Model: The SERVQUAL model offers a comprehensive framework for evaluating service quality in Nepalese commercial banks. Applying this model to the context of e-banking describes the significance of each dimension in shaping customers' perceptions of service quality in the digital age. By addressing the degrees of tangibles, reliability, responsiveness, assurance, and empathy within the e-banking background, Nepalese banks can effectively navigate the challenges and opportunities presented by the evolving bankingindustry.

III. RESEARCH METHODS

This study has adopted the correlational and causal-comparative research design to test the relationship and impact of the study. The population of the study consists of 27 commercial banks, which are operating in Nepal as on February 2022. A pre-tested and well-structured as well self-administered questionnaire was designed for conducting this study. The data required for the study was collected from the customers of all 27 commercial banks on personal visit, through e-mail and social media apps.All together 810 customers were approached from all together 27 commercial banks and out of them 780 customers completely filled the questionnaire comprising 30 from each bank. The distributed questionnaire used a five-point Likert scale, point one for a strongly disagreement and point five for a strongly agreement. The data that was collected in this study was analyzed using the Statistical Packages for Social Science (SPSS) version 25. Correlation coefficient analysis was used to determine the association between e-Banking and service quality perception of customers, and multiple regression analysis was used to determine the effect of e-Banking on service quality of customers in Nepalese commercial banks.Chronbach's Alpha was also used to measure the internal consistency of the variables of the study. This study investigates that e-banking services as a function of tangibility, reliability, responsiveness, assurance and empathy. To achieve this objective a multiple regression model is specified as below:

E-banking services= $\beta_0 + \beta_1 T + \beta_2 R + \beta_3 RE + \beta_4 A + \beta_5 E + e_i$

Where,T = Tangibility, R=Reliability, RE = Responsiveness, A = Assurance, E = Empathy, β_0= Theintercept (constantterm) ande_i=error term

IV. RESULTS

The research study is based on the customers of commercial banks in Kathmandu valley. The sample size of the study is 780 based on random sampling technique. Table 1revealed the respondents' profile. It shows that out of the total respondents, 16% customers are below the age of 25 years, 31.2% fall in the age category of 26-35 years, 26.9% in 36-45 years whereas only 17.6 % from 46-55 and 8.3% fall in the age category of more than 56 years. The table reflects that majority of the respondents are in the age category of 26 - 35 years. Majority of the respondents, i.e., 51.8 % are graduated, 25.6 % are undergraduate, 7.2% are SEE level and 15.4% are post graduated. An analysis of the table reveals that maximum number of respondents belong to graduate category. For status of usage of e-banking, 20.8% are below 1 year, 36.2% are 1-4 years, 21.8% are 5-8 Years, 17,6% are from 9-12 years and 3.7% are more than 12 years. Out of the total respondents 41% are serviceman, 27.8% are businessman, 3.7 % are agriculturist, 20% are professional and 7.4% are government job holder.Among respondents, 11.5% were from government banks, 27.3% from joint venture banks and 61.2% from private commercial banks.Among the respondents, 4.9% has monthly income less than Rs. 15,000, 26.7% has Rs.15000-25000, 47.7% has monthly income Rs. 25000-35000, 15.5% has Rs. 35000-45000 and 4.9% has more than Rs.50,000.

Table 1
Respondents Profile

Variables	Frequency	Percent
N	**780**	
Gender		
Male	481	61.7
Female	299	38.3
Age		
Below 25	125	16
25-35	243	31.2
36-45	210	26.9
46-55	137	17.6
Above 55	65	8.3
Marital Status		
Married	625	80.1
Unmarried	155	19.9
Academic Qualification		
SEE	56	7.2
Undergraduate	200	25.6
Graduate	404	51.8
Post Graduate	120	15.4
Status of e-banking usage		
Below 1 year	162	20.8
1-4 years	282	36.2
5-8 years	170	21.8
9-12 years	137	17.6
More than 12 years	29	3.7
Occupation		
Serviceman	320	41
Businessman	217	27.8
Agriculturalist	29	3.7
Professional	156	20
Government Jobholder	58	7.4
Types of Banks		
Government Bank	66	11.5
Joint Venture Bank	156	27.3
Private Bank	349	61.2
Monthly Income		
Less than 15,000	38	4.9
15,000-25,000	208	26.7
25,000-35,000	372	47.7
35,000-45,000	124	15.5
More than 45,000	38	4.9

Source: Field survey, 2023

Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis is a Structural Equation Modeling (SEM) and factor analysis method used to find out if observed variables contribute to latent or unobserved variables. The aim of this study is to estimate the extent to which each of these factors impacts on service quality in Nepalese commercial banks. Through this research, it was found that the use of electronic banking facilitates, the service quality determined in the form of tangibility, reliability, responsiveness, assurance and empathy in Nepalese commercial banks.

To achieve the aim of the research, 780 individuals were surveyed. The questionnaire consisted of the questions regarding all the factors of service quality. Factor analysis is commonly used as a data reduction technique that trims down many variables into a set of factors for further analysis. Before running EFA, all the pre-requisites are examined (that is, multivariate normality, multi-collinearity and sample size).

Reliability and Validity Analysis

Construct Reliability was assessed using Cronbach's Alpha and Composite Reliability. Cronbach Alpha for each construct in the study was found over the required limited of .070 (Nunnally and Bernstein, 1994). Convergent validity of scale items was estimated using Average Variance extracted (Fornell & Larcker, 1981). The average variance-extracted values should be above the threshold value of 0.50 (Fornell & Larcker, 1981) for all the constructs.

Table 2

Reliability and Convergent Validity

Items	**Alpha**	**Composite Reliability**	**AVE**
Tangibility	.949	0.980	0.909
Reliability	.812	0.950	0.762
Responsiveness	.902	0.908	0.717
Assurance	.899	0.851	0.609
Empathy	.982	0.920	0.744
E-Banking	.967	0.966	0.877

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Average Variance Extracted (AVE): It is the measure for understanding convergent validity i.e. construct's ability to share items or statements used to depict it. Herein, the value of AVE for all the variables is more than 0.5 i.e. Tangibility 0.909, Reliability 0.762, Responsiveness 0.717, Assurance 0.609, Empathy 0.744, and E-Banking 0.877. Thus, the model has convergent validity.

Composite Reliability (CR): It is the method for assessing the contribution or significance of an item by examining the factors loading. Herein, the value of CR is also more than 0.7 for all the constructs i.e. 5 i.e. Tangibility 0.980, Reliability 0.950, Responsiveness 0.908, Assurance 0.851, Empathy 0.920, and E-Banking 0.966. Thus, composite reliability is derived for the model.

Internal Consistency: It is the reliability method for depicting the factor's linkage with other factors. Cronbach Alpha is the method to measure internal consistency. The value Cronbach Alpha is more than 0.7 for all the variables i.e i.e. Tangibility 0.949, Reliability 0.812, Responsiveness 0.902, Assurance – 0.899, Empathy is 0.982, and E-Banking is 0.967. Thus, there is the presence of internal consistency in the model.

Discriminant Validity: Discriminant validity is the degree where items differentiate among constructs and measure distinct concepts (Fornell and Larcker, 1981). It was evaluated using two criteria: Fornell-Larcker and HTMT criterion. Table 3 shows the discriminant validity of the instruments examined by following Fornell and Larcker (1981). The square root of the AVE showed in bold values on the diagonals was greater than the corresponding row and column values that indicate discriminant validity of the constructs. Table 3 shows the discriminant validity of the instruments which was examined by HTMT analysis. All the values are less than 0.9. So, there was no issue of discriminant validity.

Table 3

Validity Analysis

	CR	AVE	MSV	Max R(H)	F2	F3	F4	F6	F7	F8
F2	0.976	0.892	0.521	0.982	**0.944**					
F3	0.929	0.728	0.063	0.980	0.165***	**0.853**				
F4	0.901	0.734	0.521	0.602	0.722***	0.245***	**0.856**			

F6	0.881	0.714	0.068	0.917	0.237***	0.252***	0.260***	**0.845**		
F7	0.897	0.813	0.053	0.898	0.128**	0.088*	0.231***	0.085*	**0.902**	
F8	0.877	0.733	0.194	2.287	0.223***	0.016	0.440***	0.013	0.023	**0.856**

Table 4
HTMT Analysis

	F2	**F3**	**F4**	**F6**	**F7**	**F8**	**F9**	**F10**	**F11**	**F12**
F2										
F3	0.200									
F4	0.752	0.287								
F6	0.249	0.273	0.267							
F7	0.133	0.103	0.233	0.092						
F8	0.327	0.007	0.562	0.055	0.003					

CFA Model Fit

After running AMOS, several fit statistics, which justified the measurement model fit and the goodness of fit statistics, were accepted. The result is summarized in figure 1.

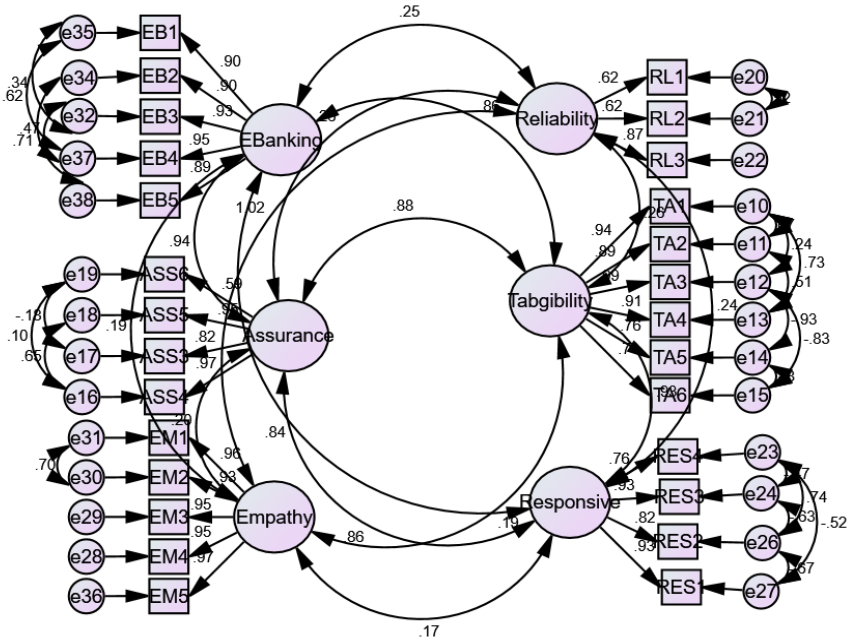

Figure1
CFA Model
Source: Field survey,2023

Table 4
Result of Model Fit

Model	CMIN	DF	P	CMIN /DF	GFI	AGFI	NFI	TLI	CFI	RMSEA
Default model	315.49	119	.000	2.91	.915	.902	.912	.983	.978	.057
Saturated model	000	0			1.000		1.00		1.00	
Independence model	32322.05	325	.000	99.452	325	.000	99.45	.000	.000	.356

Source: Field survey, 2023

The fit statistics referring to this measurement model showed adequate fit represented by values of 0.9 or above for NFI, TLI, CFI and less than 0.8 for RMSEA (Bagozzi &Yi, 1998). The chai square of this model was 315.492, at DF of 119 (p=0.00), also indicative of data fit. Chi-square / degrees of freedom are represented by the value 2.91, which is less than 5.0. Other less favorable indicators were GFI=.915 and AGFI= .902, which were greater than 0.9. Therefore, the goodness of fit statistics illustrated that the measurement model fitted well with the data.

Must Likelihood Estimations (MLE) Result for Linkage Analysis

It describes the linkage examination of contribution of factors to service quality determined in the form of reliability, responsive, empathy, assurance and tangibility in Nepalese commercial banks. The Maximum Likelihood Estimation (MLE) in below table shows that electronic banking has significance influence and supported in service quality determined in the form of reliability, responsive, empathy, assurance and tangibility in Nepalese commercial banks. In order to identify the factors contributing to service quality determined in the form of reliability, responsive, empathy, assurance and tangibility in Nepalese commercial banks. Level measurement, all the sub-factors were assessed separately. The results are shown in the table 5 below:

Table 5
Examining the Linkage and Estimation for Confirmatory factor Analysis

	Relation		Estimate	S.E.	C.R.	P	Label
TA1	<---	Tan	1.000				
TA2	<---	Tan	.941	.013	72.776	***	Significance
TA3	<---	Tan	1.044	.014	76.073	***	Significance
TA4	<---	Tan	.966	.011	86.665	***	Significance
TA5	<---	Tan	.845	.029	28.993	***	Significance
TA6	<---	Tan	.779	.031	25.377	***	Significance
ASS4	<---	Ass	1.000				
ASS3	<---	Ass	.852	.024	35.699	***	Significance
ASS5	<---	Ass	.984	.009	104.349	***	Significance
ASS6	<---	Ass	.600	.030	19.964	***	Significance
RL1	<---	Reali	1.000				
RL2	<---	Reali	1.032	.046	22.659	***	Significance
RL3	<---	Reali	1.549	.076	20.374	***	Significance
RES4	<---	Resp	1.000				
RES3	<---	Resp	1.199	.050	24.064	***	Significance
RES2	<---	Resp	1.093	.024	45.211	***	Significance
RES1	<---	Resp	1.197	.051	23.428	***	Significance
EM4	<---	Empat	1.000				
EM3	<---	Empat	1.055	.018	59.504	***	Significance
EM2	<---	Empat	1.015	.018	55.240	***	Significance
EM1	<---	Empat	1.045	.016	64.487	***	Significance

	Relation		Estimate	S.E.	C.R.	P	Label
EB3	<---	EB	1.000				
EB2	<---	EB	.994	.024	41.351	***	Significance
EB1	<---	EB	.983	.019	52.434	***	Significance
EM5	<---	Empat	1.049	.015	69.099	***	Significance
EB4	<---	EB	1.042	.015	71.711	***	Significance
EB5	<---	EB	.973	.025	39.707	***	Significance

Firstly, the 'p-value' is relevant in order to assess whether there is a significant relationship between the sub-factors and general banking transaction and practice or not. This 'p-value' must be less than 0.05 for the relationship to exist (Kock, 2016). In this case, all the sub-factors or aspects have a 'p-value' of 0.00, therefore there is a significant relationship.

Next, the 'Estimate' value of the variables is relevant. In the case of many sub-factors such as TA3, RL2, RL3, RES3 , RES1 , EM3, EM2, EM1and EM5 are high. This shows high factor loading. Similarly for other constructs too, the factor loading is above 0.5. Thus, this shows that use of electronic banking and service quality determined in the form of reliability, responsive, empathy, assurance and tangibility factors have an important and positive contribution in measuring the level of impact of e-banking on service quality determined in the form of reliability, responsive, empathy, assurance and tangibility in Nepalese commercial banks.

Confirmatory factor analysis helps to determine the efficiency of the construct. It is a key step and analysis in an SEM model. Since the model is proven to be effective, each of the selected factors has a positive contribution in measuring the main construct i.e. electronic banking compute the impact on service quality determined in the form of reliability, responsive, empathy, assurance and tangibility in Nepalese commercial banks.

Significance Testing Using Analysis of a Moment Structures Using AMOS

The structural model is the second stage in the SEM approach. This model integrates and correlates all factors to service quality determined in the form of reliability, responsive, empathy, assurance and tangibility constructs. It also provides a structural

link from the e-banking process to the service quality determined in the form of reliability, responsive, empathy, assurance and tangibility in Nepalese commercial banks in figure below.

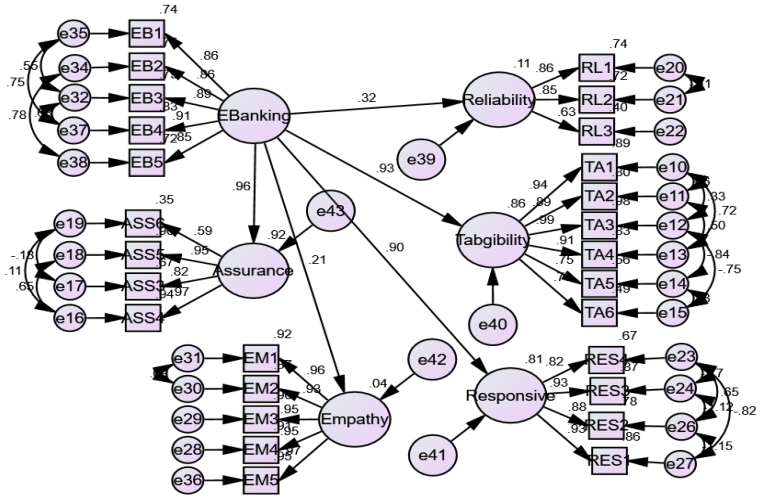

Figure 2

Structural Model of E-Banking and its relation with service quality in Nepalese commercial banks

Structural Model Fit

Table 6
Structural Model Fit

Model	CMIN	DF	P	CMIN/DF	GFI	AGFI	NFI	TLI	CFI	RMSEA
Default model	315.492	119	.000	2.878	.971	.952	.912	.985	.989	.103
Saturated model	000	0			1.00		1.00		1.00	
Independence model	34065.50	351	.000	97.053	325	.000	.000	.000	.000	.351

Source: Field survey,2023

The fit statistics referring to this measurement model showed adequate fit represented by values of 0.9 or above for NFI=0.912, TLI=0.985, CFI=0.989 and less than 0.8 for RMSEA=.103 (Bagozzi &Yi, 1998). The chai square of this model was 315.492, at DF of 119 (p=0.00), also indicative of data fit. Chi-square / degrees of freedom are represented by the value 2.878, which is less than 5.0. Other less favorable indicators were GFI=.971

and AGFI= .952, which were greater than 0.9. Therefore, the goodness of fit statistics illustrated that the structural model fitted well with the data.

Impact of E-banking on Service Quality Using Regression Analysis

The impact of e-banking on service quality refers to the effects that electronic banking (e-banking) technologies and platforms have on the overall quality of financial services

provided to customers. The following table describes the impact of e-banking on service quality of Nepalese commercial banks.

Table 7
Regression Analysis

			Estimate
Reali	<---	EB	.325
Tan	<---	EB	.930
Resp	<---	EB	.898
Ass	<---	EB	.959
Empat	<---	EB	.208

The results of the regression analysis using AMOS indicated a significant positive relationship between use of e-banking and reliability ($\beta = 0.710$, $p < 0.01$). The coefficient of determination (R^2) was 0.325, indicating that 32.5 % of the variance in reliability can be explained by the use of e-banking.

The results of the regression analysis using AMOS indicated a significant positive relationship between use of e-banking and tangibility ($\beta = 0.720$, $p < 0.01$). The coefficient of determination (R^2) was 0.93, indicating that 93 % of the variance in reliability can be explained by the use of e-banking.

The results of the regression analysis using AMOS indicated a significant positive relationship between use of e-banking and assurance ($\beta = 0.680$, $p < 0.01$). The coefficient of determination (R^2) was 0.959, indicating that 95.9 % of the variance in assurance can be explained by the use of e-banking.

The results of the regression analysis using AMOS indicated a significant positive relationship between use of e-banking and empathy ($\beta = 0.810$, $p < 0.01$). The coefficient of determination (R^2) was 0.208, indicating that 20.8 % of the variance in empathy can be explained by the use of e-banking.

These findings support the hypothesis that electronic banking significantly predicts service quality (Tangibility, Responsive, Empathy, Reliability and Assurance) in Nepalese commercial banks.

Hypothesis Testing Using Analysis of a Moment Structures

The Hypothesis for studying the impact of e-banking on the service quality in Nepalese commercial banks.

H01: There is no significance impact of e-banking on the service quality in Nepalese commercial banks.

HA1: There is a significance impact of e-banking on the service quality in Nepalese commercial banks.

Tangibility, assurance, reliability, responsiveness and empathy are considered as the dimensions of service quality in Nepalese commercial banks. So, we have the following hypothesis.

H1: There is a significant impact of e-banking on tangibility.

H2: There is a significant impact of e-banking on reliability.
H3: There is a significant impact of e-banking on assurance.
H4: There is a significant impact of e-banking on responsiveness.
H5: There is a significant impact of e-banking on empathy
The results of estimates are shown below:

Table 8
The results of estimates

			Estimate	S.E.	C.R.	P	Label
H1 - Reali	<---	EB	.332	.036	8.386	***	Significance
H2 - Tan	<---	EB	.413	.028	6.122	***	Significance
H3 - Resp	<---	EB	.552	.033	5.826	***	Significance
H4 - Ass	<---	EB	.433	.025	4.814	***	Significance
H5 - Empat	<---	EB	.428	.040	5.722	***	Significance

The P-value shows that for each variable the significance value is less than the significance level of the study i.e. 0.01. Thus, the first null hypotheses of having no significant impact of e-banking on reliability have been rejected. A second null hypothesis of having no significant impact of e-banking on tangibility have been rejected has been rejected. Third null hypothesis of having no significant impact of e-banking on responsiveness have been rejected. Forth, null hypotheses of having no significant impact of e-banking on assurance have been rejected. Similarly, the fifth null hypotheses of having no significant impact of e-banking on empathy have been rejected. This result is further verified by the z-score value i.e. 8.536 for reliability, 6.122 for tangibility, 5.823 for responsiveness, 4.814 for assurance and 5.722 for empathy which is more than the tabulated Z-value of 1.96. Hence, for the present study, the analysis of the perception of the people shows that there is a significance impact of e-banking on service quality measured with the dimension tangibility, empathy, assurance, responsiveness and reliability.

Justification of the Result

Parasuraman et al. (1988) investigate the dimensions of service quality and their influence on customer perceptions. Dabholkar et al. (2000) extend the SERVQUAL framework, discussing technology's role in service improvement. Ahmed and Rafiq (2003) explore internal marketing's relevance to service quality and employee involvement, a facet often influenced by ICT. Kumbhar (2011) examines e-banking's effects on customer satisfaction and service quality, providing insights into the broader impact of technology on banking experiences.

Zeithaml et al.'s (1990) introduction of the SERVQUAL model, emphasizing tangibles, reliability. E-banking's impact on service quality is marked by increased convenience and accessibility for customers (Sathye, 1999), attributed to faster transaction processing that reduces wait times (Al-Majali et al., 2013). The introduction of e-banking enhances customer experiences through user-friendly interfaces (Nath et al., 2019) and personalization of services based on preferences (Saxena & Khurana, 2002). Moreover, e-banking's transparency in providing account and transaction information enhances trust (Dwivedi et al., 2009), ability, responsiveness, assurance, and empathy.

V. Conclusions

The primary aim of this study was to outline the research objectives and the procedure in Structural Equation Modeling (SEM) followed by developing questionnaire scales to measure the impact of e-banking on service quality of Nepalese commercial banks. To measure the impacts using Confirmatory Factor Analysis (CFA), it is revealed that e-banking practices have a significance impact with a higher cut-off Goodness-of-Fit Index (GFI) >.95 and RMSEA (spec. < 0.08). Moreover, the results prove that the structural model of e-banking applications have strong relationship between service quality in terms of tangibility, responsiveness, assurance, reliability and empathy. In fact, all three hypotheses were discussed earlier indicates a significant relationship.

CONTRIBUTION OF THE STUDY

Theoretical contribution

The current study contributes to the existing literature in the field of e-banking and service quality dimensions. The main objective of the underlinestudy is to examine the role of e-banking for theservice quality provided to the customers in Nepalese commercial banks. The current studyevaluates the role of e-banking for

providing the service quality to the customers of Nepalese commercial banks in terms of tangibility, responsiveness, assurance, reliability and empathy.

Practical implications

In this ever-growing competitive banking industry, understanding the effect of e-Banking on service quality of Nepalese commercial banks is the secret to being competitive and successful in the banking sector. This study supports for transforming e-Banking services through supporting growth, promoting innovation, and enhancing competitiveness. The results of this study can be used as empirical evidence that explains the positive influence of service quality through e-banking. Hence, based on the findings of this study, it is recommended that policymakers and banks should focus on the e-banking factors related to tangibility, reliability, responsiveness, reliability, assurance and empathy.

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