

Individual Performance and Mobile Banking: Role of Task Technology Fit Model

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Abstract

The study examines how task technology fit factors determines individual performance of mobile banking application users. There isn't any study pertaining to individual performance in context of mobile banking using task technology fit model in Nepal, thus it will be a novel study in Nepalese perspective. The study investigates the factors of task technology fit model and collects 181 data using google survey questionnaire. Data were then analyzed using structural equation modelling by AMOS. The findings indicate that task characteristics has positive and significant effect on task technology fit and use of mobile banking has positive and most promising effect on individual performance. However, positive but insignificant impact can be seen of technology characteristics on task technology fit and task technology fit on use of mobile banking. This study provides an insight to the financial institutions in Nepal regarding the perception of their users towards mobile banking application service.

Keywords

Mobile banking, task-technology fit, task characteristics, technology characteristics, use of mobile banking, individual performance.

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1 Introduction

Mobile banking is immensely emerging in the digital age [1] and has become a prominent banking channel laterally with internet banking [2]. Mobile banking facilitates user a complete financial solution such as checking bank accounts, transferring money and making transactions without using traditional method where user has to visit bank branches or automated teller machine (ATM) [3].

Mobile banking users can access over a vast geographical area anywhere, anytime without their physical presence for banking services [4]. Furthermore, the introduction of Mobile banking, banks aim to provide account holder with better service becoming more friendly and cost-effective compared to old retail banking channels [5]. Hence, one of the most innovative tool for financial sector, mobile banking leads to satisfaction and loyalty [6].

Mobile banking system in Nepal started after 65

years of Nepal Bank limited, the first commercial bank of Nepal and was initiated by Kumari bank in 2002 and is a promising service of banking sector [7]. Nepal is witnessing exponential growth in the use of mobile banking as the total mobile banking user in Nepal was more than 17 million by the mid of 2022, an increase of 1.66% in comparison to last year [8]. Therefore, under such competitive environment, all 21 commercial banks in Nepal are providing Mobile banking service [9]. The penetration of mobile phones and use of internet in most of the household, mobile banking has emerged as promising financial channel for developing nation [10]. The globe has comprehended the increment in mobile banking as of May 2021, penetration of mobile banking has grown to 95% of Gen Zers, 91% of Millennials, 85% of Gen Xers, 60% of Baby Boomers and 27% of Seniors [11].

There are number of theories that have been applied to study the impact of mobile banking namely Technology acceptance model(TAM) [12, 13] Theory of planned behavior(TPB) [14] The Unified Theory of Acceptance and Use of Technology (UTAUT) [15]. Every financial institutions wants to give their best service to be in competition but they haven't thought about whether the application they are providing to the users are fit? This study undertakes Task technology fit model by [16] to understand the individual performance using mobile banking services. Task technology fit is a model that predicts the individual use of IT affects their performance and that performance benefit will be greater if the IT fits the task.

This study positions task characteristics and technology characteristics to investigate the task technology fit of mobile banking leading to its utilization and impact on individual performance. The two primary objective of this study are (a) to investigate the factors influencing mobile banking utilization and performance of mobile banking and (b) to examine the factor that has maximum influence on mobile banking use and performance. The study is divided and structured as follows: Section 2 provides the overview of relevant and past literature, a proposed theoretical framework and hypothesis. Section 3 discusses about the research methods followed by discussion in section 4 and Conclusion, limitations and future research directions in section 5.

2 Literature Review

2.1 Mobile Banking

The increment in Technology advancement has currently disrupted the Fourth Industrial revolution and therefore fourth industrial revolution brings in the intensive use of the Internet, social media, dig-

ital devices etc [17]. Due to such speedy pace in technology advancement, banking sectors to cater the needs of their customers' have introduced automated teller machine (ATM), mobile banking, digital banking kiosks, Unified payment interface (UPI) [18], mobile banking has become an important concept compared to traditional banking [19]. Mobile banking refers to the new technology that facilities banking services using mobile phones. Mobile banking is a technological advancement that facilitates the extension of banking services via mobile devices, irrespective of place or time and the user can create value without the physical presence at the bank branches [20].

2.2 Task Characteristics

Task is considered as the act carried out by an individual that turns input into output. According to [16] a task is broadly defined as a piece of work that a person performs through a sequence of action to achieve its goals. Task characteristics is basically the trait of IT that might move a user to rely more heavily on certain aspects of the information technology. In this study task characteristics are the encouragements that triggers users to adopt a specific technology innovation [21]. Task characteristics is an important variable that affects behavioral intention to adopt and use mobile banking application [22]. Previous research have studied the relationship between task characteristics and mobile banking adoption and found that task characteristics affects task technology fit which in turn impact mobile banking use [23]. Furthermore, a study conducted by [24] in Pakistan depicted that task characteristics has positive and significant impact on task technology fit sequentially leading to acceptance of mobile banking. Hence, from above discussion, following hypothesis is presented:

H1: Task characteristics of mobile banking affects task technology fit.

2.3 Technology Characteristics

Technology is defined as tools that are implemented by users in carrying out their required task (16). Technology characteristics are the features such as software, hardware, support facilities that are applied by users when performing a particular task [25]. In other words mobile banking technology characteristics allow users perform tasks such as checking of users account, payments of bills, fund transferring making it attractive and easy to use [26]. According to [27] study conducted in Malaysia technology characteristics significantly influenced task technology fit while task technology fit positively and significantly affected user performance while using mobile banking application. Moreover, technology characteristics significantly influ-

ences the task technology fit [28]. Therefore, from above literature we have presented following hypothesis:

H2: Technology characteristics of mobile banking affects task technology fit.

2.4 Task Technology Fit

An efficient technology makes mobile banking more desirable and suitable whereas some poor technology imbalances the usage and attractiveness of banking service. Task technology fit (TTF) is the degree to which technology facilities traits that upkeep the requirement of task of an individual [16]. TTF have been operationalized in various context as directly measured variable or interaction based on separately measured task and technology construct. For this study we are using the directly measured variable that is the extent to which the technology matches the tasks to be completed [29]. There are several studies that have examined the positive influence of task technology fit on technology usage [30]. A study conducted by [31] examining the adoption of E-textbooks found that task technology fit has a positive and significant effect on adoption of e-textbook. Similarly, a study by [32] examined the decision making performance using heat maps revealed that task technology fit has significant impact on decision making performance.

2.5 Individual Performance

Individual Performance is the completion of a collection of task by an individual and in mobile banking context it is the capability to carryout financial transactions with minimum expenditure of time and effort thus increasing individual well-being (26). According to [16] individual performance is a

result of the usage and better fit between technology and task it supports that are required to function mobile banking. The elementary belief of task technology fit is that the higher the support provided by a particular technology for a task, greater the user's perception of task technology fit and better is the individual performance [33]. Similarly, another study conducted by [30] depicted that task technology fit positively and significantly affects individual performance. Based on above discussion, we have presented following hypothesis:

H3: Task technology fit of mobile banking affects individual performance.

2.6 Use of Mobile Banking

According to Task-technology fit theory, utilization of any system is the characteristics of how well the function of specific system can address the attributes of given task (16). Technology utilization is the degree of association between an information system and a task that determines the output of technology utilization ultimately influencing system performance. If the technology matches or fits the task to be performed but has no any utilization can't be deemed as a fit technology for the task, so as there should be utilization and utility of the technology [34]. According to (33), there is a positive association between task technology fit and utilization of information system. Similarly, [35] studied the employees performance and utilization of hotel information system and found that task-technology fit has direct and significant effect on utilization of information system. From above literature, the following hypothesis can be proposed:

H4: Task technology fit of mobile banking affects use of mobile banking.

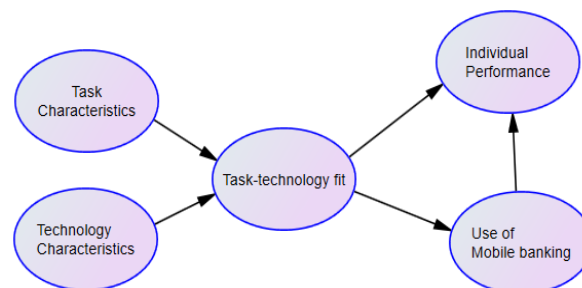


Figure 1: Research model for the study.

2.7 Individual Performance and Use of Mobile Banking

here are various mobile banking applications, solutions and products that are valuable area for users

who expect benefits anywhere-at-anytime connectivity (15). According to [34] system use has a direct positive impact on individual performance. Similarly, (2) revealed that there is a positive and significant association between use of any syste-

mand the impact on the users performance. So banking channel should be as such that not only performance better but also has positive impact on the performance of the users. Based on above discussion, we present following hypothesis:

H5: Use of mobile banking affects the individual performance.

Based on the relationship identified and research objectives, Figure 1 presents the research model.

3 Methodology

Online survey was conducted to collect data using google forms. A closed-ended questionnaire with two sections: demographic data (gender, age, education and family income) and six latent variables (task characteristics, technology characteristics, task technology fit, individual performance and use of mobile banking) was used to collect data. The hypothesis was tested using structural equation modelling. As proposed by Gerbing Anderson (1998), the study used a two-step technique using IBM SPSS AMOS 23 to investigate proposed hypothesis. The first step is Measurement model which includes exploratory factor analysis (EFA),

item-to-item correlation, Cronbach's alpha and confirmatory factor analysis (CFA) and the second is the structural model which includes the model's goodness to fit. Likert 5-point scale was applied to assess all measurement items and latent variables i.e. 1 for strongly disagree and 5 for strongly agree).

3.1 The Measures

Illustrated in table 1 are the multiple scales adapted from previous studies: Table 1. Measurement Scale. A survey questionnaire was provided to the respondent via social media namely Facebook, and Google mail. A convenience sample of 200 people from the Koshi province of Nepal was invited to take part in the survey. Out of 200 questionnaires, 181 valid questionnaires were obtained while deleting data with missing and incomplete response. It represents 90.5% return rate. Male respondents were 66.3% whereas 33.7% are female. Out of total respondent 33.33% were of 31-40 year age group, 61.9% were unmarried. In addition, maximum respondent possessed bachelor's degree with 40.8% and 40.88% has a family income of above Rs. 60,000. Respondent sample characteristics are shown in Table 2.

Table 1: Sample and data collection.

Research Construct	Items	Measurement Scale	Source
Task Characteristics	TaCh1	I need to manage my accounts anytime anywhere	[6]
	TaCh2	I need to do transfers anytime anywhere	
	TaCh3	I need to have a real time control in my accounts	
Technology Characteristics	TeCh1	Mobile banking provides ubiquitous service	[6]
	TeCh2	Mobile banking provides a real time service	
	TeCh3	Mobile banking provides secure services	
	TeCh4	Mobile banking provides a quick service	
Task Technology Fit	TTF1	Mobile banking payment services are appropriate	[6]
	TTF2	Mobile banking account management services are appropriate	
	TTF3	Real time mobile banking services are appropriate	
Use of Mobile banking	UMB1	I use m-banking	[2]
	UMB2	I use m-banking to manage my accounts	
	UMB3	I use m-banking to make transfers	
	UMB4	I subscribe to financial products that are exclusive to mobile banking	
Individual Performance	IP1	I gain time using mobile banking	[14]
	IP2	Mobile banking allows me to make my payments quicker	
	IP3	Mobile banking helps me do my financial activity promptly	
	IP4	I can find myself being active using mobile banking	

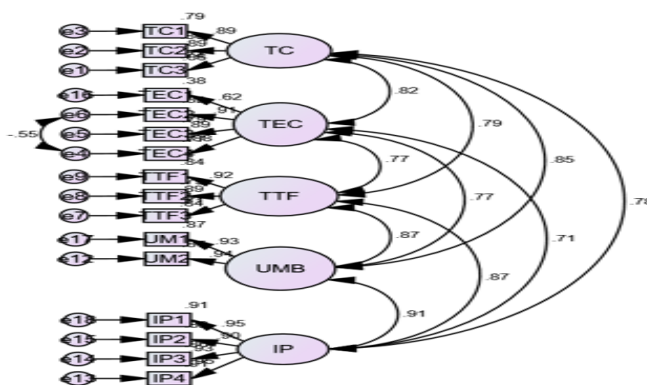


Figure 2: Factor loadings of items.

3.2 Measurement Model

Stated before, the researcher analyzed data in two steps: measurement model and structural model. The functional commonalities and canonical correlations between common factors and observed variables are square multiple correlations (SMC) that reflects the value of predicting variable indicating measurement reliability and variance percentage explained by the latent variable shown in Table 3. The SMCs values of each variable are higher than the criterion value of 0.70. Cornbach’s alpha was used to examine the reliability of each construct which is shown in the table 3. The Cronbach’s alpha of task characteristics is 0.911, technology characteristics is 0.884, task technology fit is 0.913, use of mo-

bile banking is 0.932 and individual performance is 0.965 defining reliability. The Convergent validity should meet the following three conditions according to Fornell Larcker (1981): (a) The factor loadings should significantly be higher than 0.5, (b) The composite reliability should not be higher than 0 and (c) The average value extract should be higher than 0.5. All the factor loading values were above the threshold value of 0.50 (ranging from 0.617 to 0.955), the CR value ranged from 0.8836 to 0.9624 which is higher than the threshold value of 0.50 and finally the average value extract (AVE) of each variable ranged from 0.81 to 0.9974 which is also greater than the threshold value of 0.50. The reliability and validity of the variables are summarized in Table 3.

Table 2: Respondent Sample Characteristics.

Demographics	Characteristics	Number of respondents	Percentage
Gender	Male	120	66.3
	Female	61	33.7
Ages	18-30 years	55	30.5
	31-40 years	60	33.33
	41-50 years	42	23.33
	Above 50 years	24	13.4
Marital Status	Married	69	38.1
	Unmarried	112	61.9
Education	Higher secondary (+2)	20	11.11
	Bachelors	74	40.8
	Masters	47	25.9
	Above Masters	40	22.09
Family Income	Less than Rs.15000	11	6.1
	Rs.15001 to Rs.30000	16	8.88
	Rs.30001 to Rs.45000	36	19.8
	Rs.45001 to Rs.60000	66	36.46
	Above Rs.60000	74	40.88

Table 3: Reliability and validity of variables.

Constructs	Items	Factor Loadings	SMC	Cronbach's Alpha	CR	AVE
Task Characteristics	TC1	0.887	0.786	0.911	0.9624	0.8643
	TC2	0.892	0.795			
	TC3	0.862	0.743			
Technology Characteristics	TEC1	0.617	0.881	0.884	0.9463	0.8378
	TEC2	0.906	0.821			
	TEC3	0.886	0.786			
	ATEC4	0.878	0.771			
Task Technology Fit	TTF1	0.916	0.839	0.913	0.8845	0.9974
	TTF2	0.889	0.789			
	TTF3	0.843	0.71			
Use of Mobile Banking	UM1	0.933	0.871	0.932	0.9218	0.9412
	UM2	0.935	0.875			
Individual Performance	IP1	0.951	0.905	0.965	0.8836	0.81
	IP2	0.904	0.818			
	IP3	0.927	0.86			
	IP4	0.955	0.911			

3.3 Structural Model

The study used covariance matrix to evaluate the structural model which was then assess using maximum likelihood in Amos 23. The model's overall fit indices (CMIN/DF= 2.919, GFI= 0.925, CFI= 0.975, TLI= 0.968, RMSEA= 0.069 SRMR= 0.0224) were adequate. However, AGFI was 0.891, which was near about the threshold value of 0.9. Two items UM3 and UM4 from use of mobile banking were deleted and TEC2 and TEC4 were covaried of technology characteristics to get the best model fit. The study proposed five hypothesis and t-statistics were calculated using AMOS 23 to determine the threshold significance. The path value for the relationship between task characteristics and technology characteristics with task technology fit are 0.549 ($t= 8.075$, $p= 0.000$) and 0.326 ($t=$

5.321, $p= 0.000$) respectively, supporting H1 and H2. Task characteristics has a positive and significant impact on task technology fit whereas though positive but technology characteristics has insignificant influence on task technology fit.

The path value for the relationship between task technology fit with use of mobile banking and individual performance are 0.903 ($t= 21.297$, $p= 0.000$) and 0.376 ($t=4.965$, $p= 0.000$) respectively, supporting both H3 and H4. The task technology fit has a positive and high significant effect on use of mobile banking whereas positive but insignificant influence of task technology fit over individual performance. Finally, the relationship between use of mobile banking and individual performance with 0.572 ($t= 7.476$, $p= 0.000$) supports H5. The use of mobile banking has positive and significant impact on individual performance.

Table 4: Discriminant validity.

Variables	TC	TEC	TTF	UM	IP
TC	1				
TEC	.756**	1			
TTF	.725**	.707**	1		
UM	.785**	.738**	.842**	1	
IP	.725**	.659**	.820**	.835**	1

Discriminant validity is applied to check the discriminate between measurement variables and different configurations. The correlation between each constructs and other constructs of the same dimension should be greater than the correlation between the variables of the different dimensions. The square root of Average variance extract from an individual component should be higher than correlation

coefficient between that component and other components to pass the test of discriminant validity (Fornell Larcker, 1981). Table 4 shows the correlation coefficient matrix between each component and the diagonal lines are the square roots of the AVE of that components. The square root of the AVEs for each of the structural measurement items are larger than the correlation coefficients between each

component which indicates the questions of different components in the survey questionnaire can be discriminated.

Table 5: Hypothesis summary and Path analysis results.

Hypothesis	Effect	P value	Path coefficients	Remarks
H1	TC-TTF	0.000	0.549	Supported
H2	TEC-TTF	0.000	0.346	Supported
H3	TTF- IP	0.000	0.903	Supported
H4	TTF- UMB	0.000	0.376	Supported
H5	UMB-IP	0.000	0.572	Supported

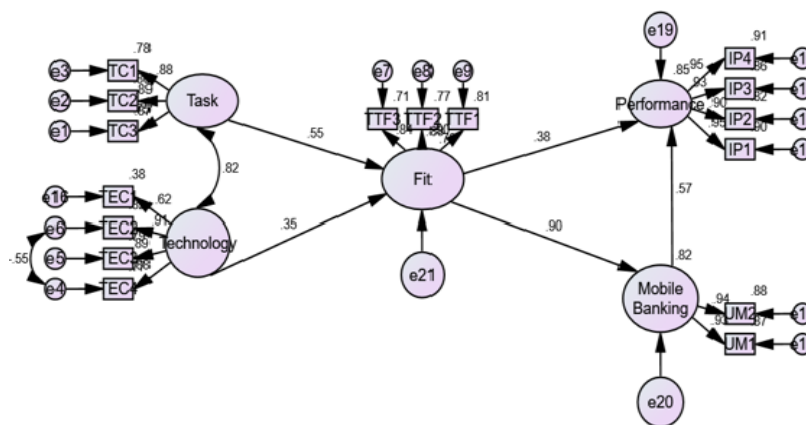


Figure 3: SEM results for hypothesis testing.

Given below in figure 2 is the graphical representation of value of path coefficients.

4 Discussion

This study used survey questionnaire to examine the task-technology fit model that explains individual performance of mobile banking application users in Koshi province. The findings of the study show that all the proposed hypothesis are supported by the data. Task characteristics has a positive and significant effect on task technology fit that is similar to (20) whereas technology characteristics has positive but insignificant impact on task technology fit which further positively determines the use of mobile banking(26) but insignificantly describes individual performance (30). Hence, when financial institution promotes mobile banking application, they need to give high concern to task and technology characteristics. Basically, mobile banking application is more applicable for those who travel frequently and stay out of their house. Bank should fragment the market and should promote mobile banking accordingly who travel extensively and who stay at house and office. This will help in use of mobile banking and individual performance. The findings also reveal that there exists relation-

ship between task technology fit and use of mobile banking. Banks should revise their application features and should include that is fit to the users. Financial institutions must not provide features and functions that have no utility to the mobile banking application users. Another findings of the study depicts that use of mobile banking has significant impact on user performance. Mobile banking will impact the user’s performance according to the use of mobile banking. What can the reason be behind the use of mobile banking should be first understood by the service providers. Is it because of compulsion they are using it? Or is there any other track for the use of mobile banking? Service providers should undertake these reasons and design the application and modify accordingly.

4.1 The Effect of Task Characteristics on the Task Technology Fit

Task characteristics is measured through the indicators of availability, transition and reality. The findings of the present study reveals that there is positive and significant influence of task characteristics on task technology fit. There are several studies that which share the same findings (20; 29; 25). It means that, if the information system or appli-

cation (in present study) need to be checked every time you use it and the user has real control over the information system, it will lead to fitness of the system. Customers as a user can control the application as per their will and use it anytime. Hence, higher the level characteristics of the task resembles to the more fit to the task.

4.2 The Effect of Technology characteristics on the Task Technology Fit

Technology characteristics is measured through the indicators of uniqueness, real service, and quick response. The findings of the study depict that there is positive but insignificant effect of technology characteristics on task technology fit. There are several studies that doesn't share the same findings (18; 26). It means no matter the uniqueness of the information system, the response is prompt and give the user real time experience, that won't lead to significant influence on task technology fit. Though the mobile banking application gives you the variety of features, real time environment and responses the task technology fit will not be enhanced.

4.3 The Effect of Task Technology Fit on Usage and Individual Performance

Task technology fit is measured by indicators like account management services are appropriate and payment system is appropriate. It means that if the mobile banking application is appropriate technically and the method of paying for different services are higher the individual performance (24) will increase but not the usage (20). That means easy management and easy payment via banking application will not lead to usage of the application whereas it will increase the individual performance.

5 Conclusion, Limitations and Future Research Directions

The study examines how task-technology fit model determines the individual performance to use mobile banking application. The findings show that technology characteristics towards task technology fit and task technology fit towards individual performance do not have significant effect on individual performance. Whereas, task characteristics towards task technology fit and use of mobile banking towards individual performance have significant effect. The findings reveal that the variable that explains the use of mobile banking and individual performance via task technology fit is task characteristics. The financial institutions should focus more on the task requirement of mobile banking applications which will in turn increase the use of

banking application. There are several limitations of this study. The limitation of generalization. Future study could aim for other population, context and time period. This model can be used in other cities of Nepal or other nations as well and in other service context too. Second, the study didn't study the relationship of all constructs like task characteristics to individual performance and technology characteristics to use of mobile banking. Thirdly, the researcher only used the constructs of task technology fit model, future research can integrate with other theories like TAM, UTAUT and TPB. It will provide crucial understanding the field of task technology fit model. Fourthly, the researcher used cross-sectional data which can't examine the changing behavior of the users. It is suggested to use longitudinal data to under the performance of individual at two distinct time frame and can estimate the effectiveness of the mobile banking application. Future research could examine these links and relationship to better understand the effect of task technology model on individual performance. More variables like perceived risk, data privacy can be used to better understand the theory. Finally, a longitudinal study of individual performance in relation to specific banking application can be examined to recognize the changing patterns of mobile banking users.

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