Factors Affecting Consumers Perception on Electronic Payment System

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Abstract

The recent growth and development of technologies has led to considerable improvement in internet technologies. Largely, electronic business services are fulfilling consumer's requirements. Electronic payment (e-payment) systems are increasingly popular in Nepal, due to the widespread use of internet for shopping and banking services as well as COVID-19 have influence people in using e-payment channels. Nepal has established a different online payment platform with other online payment services to facilitate sending and/or receiving of services for individuals or corporations via electronic channels. This study has developed a conceptual model to examine the significant factors that influence consumers' perception of e-payment in Nepal. The findings of a sample set of respondents (384) analyzed using multiple regression analysis indicate that benefit, ease of use, security and self-essence influence Nepal consumers' perception of e-payment.

Keywords: consumers' perception, electronic payments, multi-collinearity, security, trust.

I. Introduction

Electronic payments, often known as e-payments, are a method of conducting business or paying bills through the internet or through an electronic media without the use of paper checks or cash. E-payment systems have become a necessity for online transactions as the Internet has evolved. The growth of internet has facilitated the popularity of this payment instrument as electronic commerce has created new financial needs that in many cases cannot be effectively fulfilled by traditional payment systems (Sumanjeet, 2009). Payment for goods and services in Nepal is characterized by long queues; long distance traveling and time wasting that generally affect business activities and ultimately economic development of the country. Settling utility bills, payment for goods and services, and money transfers has been a major headache for individual and firms in Nepal. Therefore, with the view of these problems e-payment has been developed to benefit consumers in terms of convenience and lower transaction costs. E-payments assist customers, companies and banks to make payments much more effectively and also improve their settlement process. Thus, with electronic payments customers can easily pay their bills without physically visiting the bank premises.

In this era of contemporary world, consumers adore novel and ease transactions besides secured transfers. The evolution of digital technology has made payments simple. There are numerous payment systems available for the consumers, offering instant and secured transactions. E- Payments can be done just by a click of a button or by touch of a screen or by swiping of cards or by tapping of a point-of-sale machine or by scanning of Quick Response (QR) Code and the transactions are completed with proper authentication. The forms of electronic payments in Nepal include Credit Cards (introduced by Nabil Bank in 1990), Debit

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Cards (all commercial banks), Automated teller machines (introduced by Himalayan Bank Ltd. In0 1995), Electronic fund transfer at points of sale (EFTPOS), Internet banking (introduced by Kumari Bank Ltd. in 2002), Mobile banking; (introduced by Laxmi Bank Ltd. in 2004). Apart from the banks F1 soft (e-Sewa, Fone Pay), Paybill, i-Pay and a few other companies are acting as intermediaries in the digital transaction system.

This study has been conducted to explore the various types of electronic payment systems available in Nepal and to identify the factors affecting consumers' perception towards electronic payment systems. The study suggests that security, trust, benefits, self-efficacy, and ease of use are important factors influencing consumers perception on e-payment. It is interesting to examine these factors particularly in Nepalese setting due to the intriguing developments that are currently taking place on the prediction that e-payment use will grow at a significant rate within the next few years. Thus, studying consumers' perception towards electronic payment systems will be beneficial to the Government, Banks, Financial Institutions, Policy Makers and software developer firms in understanding the Nepalese consumers concerns and issues when using e-payment. In addition, it provides insights which will lead to wider e-payment acceptance and use to the extent that e-payment ultimately becomes a preferred medium for

economic transactions in Nepal.

II. Theoretical Framework

This section deals about the literature review of previous studies undertaken by many researchers. It provides an overview of literature review relating to various electronic payment systems from national and international context. The present study focuses on understanding consumers, how they view e-payment systems and what are the factors consumers take into account while performing their transactions digitally. A brief literary review of the studies on consumer's perception towards e-payment systems are given below:

Definitions of e-payment

E-payment refers to an electronic device that allows a person to make e-commerce transactions and to purchase various goods and services. It is becoming essential for facilitating daily work. Shon and Swatman (1998) define e-payment as any exchange of funds initiated via an electronic communication channel. While, Gans and Scheelings (1999) define e-payment as payments made through electronic signals linked directly to deposit or credit accounts. Adding another perspective, e-payment represents any kind of non-cash payment that does not involve a paper cheque (Hord, 2005). E-payments are also considered as transactions associated with e-commerce, which involves making e-payment for buying and selling goods or services via the internet.

Perception towards e-payment

Teoh et.al (2013) explored the factors influencing Malaysian customers' perception towards electronic payment. The results showed that e-payment is broadly used which reflects the growth of such services in Malaysia. The findings also showed that the three factors i.e. benefits, self-efficacy, and ease of use were significantly associated with consumer's perception toward electronic payment. Moreover, security and trust were not significantly associated with consumers' perception toward electronic payment.

Jalil et.al (2014) studied that customer trust was the main important variable that positively and significantly affected all the other variables. They examined the perception of Malaysian

consumers towards online banking. The finding showed that security, trust and website itself had a significant relationship with the consumer's perception towards online banking in a Malaysia. The findings related to customer trust were somewhat inconsistent with prior studies that found a positive impact on customer intentions to use online banking (Chong et al., 2010; Eriksson et al., 2005). However, some studies found no significant relationship between a website and trust but security did have a significant relationship with trust in terms of the use of online banking (Balasubramanian et al., 2003; Eriksson et al., 2005; Kenneth et al. 2010.

Sumathy & KP (2017) found that it is necessary to move away from the cash-based system to cashless (electronic) payment system. The results showed that it will provide several advantages like it reduces the currency management cost, track every transactions, frequently check tax avoidance or fraud etc., enhances financial inclusion and progressively integrate the parallel economy with the main stream. Furthermore, the usage of mobile wallets crosses the boundaries of big cities and gains popularity in villages also.

Khan et.al (2017) examined that a better integration of online payment systems with the present financial and telecommunication infrastructure was needed for a prosperous future of this payment mode. They also found that future work may be directed towards the legalization of various factors responsible for contributing in the effective adoption of online payment systems all over the world.

Benefits

An e-payment systems goal is to benefit consumers by providing convenience and lowering transaction costs. Because of the high setup of broadband services and penetration rate, consumers can access and manage their transactions remotely via the web based user interface. Chou et al.(2004) identify benefits as a significant driver for e-payment systems acceptance and use. Similary, Gerrard and Cunningham (2003) view perceived economic benefits to include fixed and transaction costs in adopting e-payment. Fixed costs refer to the costs of installing payment equipment such as card readers and payment software, while transaction costs are those incurred by customers and merchants every time they carry out a business transaction (Chou et al., 2004). Providing consumers with a convenient means of payment which includes users ability to spend, store, and transport a currency value through the payment systems (Chakravorti, 2003), other primary advantages of e-payment include time and cost savings. However, whether or not e-payment leads to time and cost savings remain a question. Kim et al. (2009) argue that adopting e-payment can be costly in terms of the time spent on learning to use internet and the new technology.

Trust

Trust is defined as a function of the degree of risk involved in financial transactions, and the outcome of trust is reduced perceived risk, leading to positive intentions toward e-payment adoption (Yousafzai et al., 2003). Prior studies found trust to be a significant determinant influencing customers' willingness to conduct e-commerce transactions and engage in online exchanges of money (Friedman et al., 2000; Gefen, 2000, 2003; Hoffman et al., 1999; Jarvenpaa et al., 2000; Wang et al., 2003). Customers' trust in an internet environment is very important as there is little guarantee that the online vendor will refrain from undesirable, unethical, and opportunistic behavior such as unfair pricing, presenting inaccurate information, distributing personal data, and purchase activity without prior permission (Gefen, 2000). The importance of trust is elevated in e-payment because of the high degree of uncertainty and risk present in most online transactions (Zhou, 2011). That is the reason why Kniberg (2002) insists that trust is more important than security. It can therefore be concluded that trustworthiness is vital

to e-payment success (Abrazhevich, 2004). Without an adequate system that users can trust, it would be extremely difficult for e-payment to achieve widespread usage (Lim et al., 2006).

Security

Mazumder, Jahan, and Das (2015) Security of information has become a very crucial and the most concerned parameter of modern communication system which is achieved by cryptography functions and techniques when customers and merchants carry out a transaction over internet. Thus, it helps to resolve a key issue of protection of information against the security threats. Roy and Sinha (2017) Indian customers are overly sensitive for the security concern that is why they can only adopt the electronic payment system and clearing services when they feel the channel of electronic payment system are safe and threat free. In the current study, the above variables have been employed to check their influence on the intention to use e payment systems because the previous studies have noticeably illustrated their effects on human behaviour while considering the use of technology.

Self-efficacy

In the context of e-payment, self-efficacy refers to the judgment of a user's ability to use the system. It is an important determinant of consumer's perception of e-payment systems. Self-efficacy is defined as consumer's belief and understanding of their capability to complete tasks using new technology (Oh, 2016), and it has a positive influence on the perceived intention to use information systems (Luarn & Lin, 2005). Self-efficacy represents the person's belief and understanding to perform a task, based on his or her own capability and skills (Dory et al, 2009). Many studies found that self-efficacy has a significant positive influence on perception and behavioral intention to use information systems (IS) (Hill et al., 1986, 1987; Luarn and Lin, 2005). Accordingly, users with higher levels of self-efficacy may be limited to fewer operations (Li et al, 2012).

Ease of use

Different studies have confirmed that a technology will be perceived as more useful when it is easier to use (Legris et al., 2003; Venkatesh and Davis, 2000; Wang and Li, 2011). Flavian and Guinaliu (2006) point out that ease of use of a computer system favors trust levels. This is because greater usability reduces the likelihood of error, which is a key aspect when providing financial services online. Wulandari, et.al. (2018) Technology has played a splendid role in improving the lifestyle of individuals and it is more useful for them when easier to use. Results have demonstrated that the ease of use and intention to use e-money shared a positive relation with each other. Roy and Sinha (2017) the focus of customers towards the adoption of electronic payment and clearing system will increase; when only customers believe that the services of electronic payment system are easy to use. Mobile Banking operation software, ATM interface software should be handy and user friendly so that it can easily capture the attention of customers.

Alhanoof Fahad Alyabes and Othman Alsalloum (2018) conducted a study in Saudi Arabia. This study has developed a conceptual model to examine the determinants of the significant factors that influence consumers' perception of e-payment in Saudi Arabia. The findings of a sample set of respondents (229) analyzed using multiple regression analysis indicate that benefit, ease of use, and self-efficacy influence Saudi consumers' perception of e-payment systems, while trust and security are not significantly associated with consumers' perception of e-payment.

Dr. Pallavi Pattan and Meenal Agrawal (2018) in their study aimed to analyze the consumer's perception towards frequently use of electronic payment system. The research was focused on primary data which was collected through the 400 respondents or users of Indore Division those uses e-payment system. Statistical Package of Social Science (SPSS 21.0) was used to analyze the collected data. It was found that Debit card is the most frequently used e-payment system amongst the e-commerce users of Indore Division. While Net banking is second, E-cash/ E-wallet is third and Credit card is the less use type of e-payment system amongst the e-commerce users of the study will be helpful for various researchers, academicians, professionals and other users who uses e-payment system.

Mandeep Kaur, Shefali and Himanshu Barthwal (2021) in their research aimed to understand the adoption of e payment services and study whether consumer intention is affected by Perceived Security, Perceived Health Security, Perceived Benefits and Technology Acceptance Model in India especially in the region of Delhi NCR. The main reason of the research is to check the adoption of e payment services amidst the COVID -19 pandemic specifically due to increased health security awareness. Data of survey was collected from total of 201 participants who include undergraduate and post graduate college students by sending mails online. Frequencies, Cronbach's alpha, Factor Analysis, Multiple linear regression and Oneway Anova techniques has been employed by using SPSS. The result has shown that all the five variables used are significantly influencing the intentions to use the e payment services in India especially in the region of Delhi NCR. Study also found that people who are using and likely to use e- payment preferred debit card (35.8%), e wallet (29.5%) and UPI (23.1%) as first mode of payment than credit card (11.6%).

P. Ganesh and A. Khaleelur Rahman (2018) conducted a research in India. The major objective of this study is to find out the best predicting factors that influence customer's decision while making digital payment. Data was collected using questionnaire method from 334 digital users living in Tiruchirappalli, Tamilnadu, India. The results of this study provided an in-depth understanding of the digital payments value and how the factors influenced the consumers. The finding also provided an important understanding the impact of factors on overall satisfaction of making digital payment.



Figure 1: Theoretical Framework

Source: (modified form of Teoh et.al, 2013)

Figure 1: Theoretical Framework

Hypothesis:

H1: There is a significant relationship between benefit and consumers perception towards electronic payment.

H2: There is a significant relationship between trust and consumers perception towards electronic payment.

H3: There is a significant relationship between security and consumers perception towards electronic payment.

H4: There is a significant relationship between self efficacy and consumers perception towards electronic payment.

H5: There is a significant relationship between ease of use and consumers perception towards electronic payment.

III. Research Methodology

This section deals with the research methodology of the study. It includes the following structure: the research design, population, sample size, sampling technique, sources of data collection, data collection methods, tools used for data analysis.

Research Design

Research design is a plan, structure and strategy of investigation conceived so as to obtain answer to research questions and to control variances. In order to conduct this study survey based descriptive and analytical research design was used.

Population

The population for this research has been the total number of people who are using the e-payment system provided by different service provider in the city. So, the population size is considered to be unknown for this research.

Calculation of sample size: $n_0 = Z^2$. p.q / e^2 (Singh & Masuku, 2014) Where, $n_0 =$ required sample size \hat{p} = estimated proportion of an attribute that is present in population q = estimated proportion of an attribute that is not present in population = 1-p e = Desired level of precision Z^2 = Abscissa of normal curve (z- score) When there is a large population but that we do not know the variability in the proportion that will adopt the practice; therefore, assume p= 0.5 (maximum variability). Furthermore, suppose we desire a 95% confidence level and ±5% precision. The resulting sample size is $n_0 = Z^2$. p. q / e^2 = 1.96² x 0.5 x 0.5/ 0.05² = 384.16

Therefore, the sample size for the study includes 385 online payment service users.

Sampling Method

Convenience sampling means researcher approaches the sample respondent on the basis of his/her convenience level. Convenience sampling method has been used to approach the sample respondents.

Source of Data Collection

The data for the study has been collected from primary source. Primary data was collected by distributing self-administered questionnaires to the electronic payment users. Closed-end structured questionnaire was designed in view of the data requirements. The questionnaire was distributed electronically as well as manually by visiting service users. Electronically it was distributed in social networking sites and Google mail. Respondents were guided on how to use the questionnaire so as to receive true result. Participation was voluntary and no incentives were offered for participating in the research and all data was collected.

Statistical Tools for Analysis

Statistical tools are used to analyze the information. At the time of presentation and analysis, primary data were edited and processed. In this regard, simple percentages, mean, Standard deviation and regression were used for the purpose of presentation and analysis of data. Data analysis is done through Statistical Package for Social Sciences (SPSS).

Respondents' Demographic profile

The respondents' demographic profile is presented in table number 1, which includes gender, age group, marital status, qualification and profession of respondents. The percentage of male respondents was 51.3 and female was 48.7. Similarly, age group of respondent 18-24 years consists of 52.6%, 25-34 years was 45.3%, 35-44 years was 1.6% and above 45 years was only 0.5%. Likewise out of total respondents, 82.3% were single and 17.7% were married. On similar manner 4.2% of respondents are of intermediate and below qualification, 62.8% are of bachelor and 33.1% are of masters & above. Whereas profession is concerned, 3.6% of respondent are on government service, 16.7% on private/public ltd. companies, 11.2% are self employed, 63.5% are students and 4.9% respondents are involved on other professions.

Gender					
	Frequency	Percentage			
Male	197	51.3			
Female	187	48.7			
Total	384	100			
Age Group					
18-24	202	52.6			
25-34	174	45.3			
35-44	6	1.6			
Above 45 years	2	0.5			

Table 1:

Respondents' Demographic Profile

Total	384	100				
Marital Status						
Single	316	82.3				
Married	68	17.7				
Total	384	100				
	Qualification					
Intermediate and below	16	4.2				
Bachelor	241	62.8				
Masters and above	127	33.1				
Total	384	100				
Profession						
Government service	14	3.6				
Private/Public Itd	64	16.7				
Self employed	43	11.2				
Student	244	63.5				
Others	19	4.9				
Total	384	100				

Descriptive statistics

Table no. 2 shows the descriptive statistics of the response of participants towards the electronic payments. The mean values indicates the response of the participants on various items regarding E-payments is above the average level (above 3) which refers that the consumers perception towards e-payments is satisfactory.

Table 2:

Ν Median Mode S.D. Mean Minimum Maximum 384 4.23 4.60 0.730 Benefit 4.40 1.40 5.00 Trust 384 3.62 3.75 3.75 0.794 1.25 5.00 Security 384 4.06 4.25 4.50 0.779 1.00 5.00 384 3.67 0.950 Self-efficacy 3.53 3.67 1.00 5.00 384 Ease of use 3.975 4.00 5.00 0.820 1.00 5.00 Consumers 384 4.176 4.42 4.57 0.735 1.43 5.00 perception

Descriptive statistics

Reliability and validity test

Validity test is the extent to which a test accurately measures what it is supposed to measure. For the validity of the structured questionnaires, the suggestions of supervisor and experts were incorporated. A pilot testing of the questionnaires was done for the few respondents before finalization of questionnaire. Reliability Coefficient analysis (Cronbach Alpha) facility available in SPSS software has also used for validity and reliability of the questionnaires. Therefore supervisor and expert suggestion, pilot testing and Cronbach alpha result (0.819) are major part of testing validity and reliability.

Correlation Analysis

The table of correlation matrix explains correlation coefficients between dependent and independent variables. It provides an index of the direction and magnitude of the relationship between two sets of scores.

Correlation results can also be used to test the existance of multicollinearity i.e. the situation when there exist high degree of correlation between two or more explanatory variables. The classical regression analysis assumes that the explanatory variables should be statistically independent. Thus, a high collinearity of independent variables is not acceptable as this way; the two independent variables behave in similar fashion. As a result, the regression model will be unable to separate their individual effect.

	Consumers perception	Benefit	Trust	Security	Self efficacy	Ease of use	
Consumers perception	1						
Benefit	.594**	1					
Trust	.388**	.472**	1				
Security	.556**	.534**	.439**	1			
Self efficacy	.373**	.296**	.431**	.396**	1		
Ease of use	.481**	.457**	.458**	.376**	.360**	1	

Table 3: Correlation Retween Dependent and Independent Variable

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

The table 3 shows the correlation result between all the variables under study. The coefficient of correlation between dependent variable consumers perception and independent variables Benefit, Trust, Security, Self efficacy and Ease of use is 0.594, 0.388, 0.556, 0.373 and 0.481 respectively.

Test of Multicollinearity

Multicollinearity is a phenomenon in which one predictor variable in multiple regression models can be linearly predicted from the other with substantial degree of accuracy. Variance inflation factor (VIF) and tolerance measure the multicollinearity among the independent variables. The table 4.8 shows the VIF and tolerance value of independent variables and dependent variable.

Table 4:

		Collir	nearity Statistics
Model		Tolerance	VIF
	Benefit	.606	1.650
1	Trust	.631	1.586
	Security	.632	1.582
	Self efficacy	.742	1.347
	Ease of use	.690	1.450

a. Dependent Variable: consumers perception

Table 4, indicates that the VIF for all variables are less than 10 and the tolerance factor is more than 0.1. Thus, we can conclude that the variables are free of the problem of multicollinearity. Hence, we can run the regression analysis for these variables.

Regression Analysis

A correlation analysis can only tell whether or not a strong relationship exists between two variables. But, it do not let know the exact shape of the relationship between the two variables. In such case, regression analysis provides information about the slope of the relationship. Pant (2016) defines regression analysis as a statistical technique that can be used to derive an equation that relates a single criterion variable to one or more predictor variables.

The regression results between the consumers perception as the dependent variable and the independent variables are presented as:

Table 5:

Model	Unstandardized Coefficients		Standardized Coefficients	Т	Sig.
	В	Std. Error	Beta		
(Constant)	.781	.187		4.180	.000
Benefit	.344	.048	.342	7.151	.000
Trust	025	.043	027	587	.558
Security	.255	.044	.270	5.766	.000
Self efficacy	.081	.033	.105	2.439	.015
Ease of use	.178	.040	.198	4.423	.000

Regression analysis

Table 5, shows the summary of regression analysis taking consumers perception as a dependent variable and all other items as independent. Furthermore, the beta coefficient of five independent variables Benefit, Trust, Security, Self efficacy and Ease of use are 0.344,

-0.025, 0.255, 0.081 and 0.178 respectively. It denotes one unit change in Benefit brings 0.344 times change in consumers perception. Similarly, one unit change in Security brings 0.255 times change in consumers perception. And one unit change in Self Efficacy brings about 0.081 times change in consumers perception. Also one unit change in Ease of use brings about 0.178 times change in consumers perception.

The estimated multiple regression equation for the relationship can be written as:

 $CP = \beta_0 + \beta_1 B + \beta_2 T + \beta_3 S + \beta_4 SE + \beta_5 E + \varepsilon....(i)$

Where, CP = Consumers Perception, B= Benefit, T = Trust, S = Security

SE = Self efficacy, E=Ease of use, β = Intercept or slope, ϵ = Random error term

Substituting the values of coefficient from the table 3 in equation (i) we get:

 $CP = 0.781 + 0.344B - 0.25T + 0.255S + 0.81SE + 0.178E + \varepsilon$ (ii)

Table 6:

Significance Analysis between consumers perception and its determinants

Variable	P-value	Comparison	Remark
Benefit	0.000	0.000 < 0.05	Significant
Trust	0.558	0.558 > 0.05	Insignificant
Security	0.000	0.000 < 0.05	Significant
Self efficacy	0.015	0.015 < 0.05	Significant
Ease of use	0.000	0.000 < 0.05	Significant

Based on result in table 6, it can be concluded that Benefit, Security, Self efficacy and Ease of use can better explain Consumers perception.

Table 7:

Summary of regression model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
1	.691ª	.477	.470	.53564	68.956	0.000

Table 7, shows the summary of regression model as mentioned in equation (i).

The value of R^2 is 0.477 which means that 47.7 % variance in consumers perception is explained by variation in independent variables under study. The p value is 0.000 which represents the model is fit.

IV Results and Conclusion

This section covers the analysis and presentation of data. The data were collected through

a structured questionnaire. In this study, an attempt is made to find the factors affecting consumer's perception on electronic payment system in Butwal Sub-metropolitian city. For the analysis of data, statistical tools such as percentage, correlation and multiple regression analysis has been used in the study.

This study examines the factors affecting consumers perception on electronic payment system in Butwal Sub-metropolitian city. The results show that e-payment is widely used which reflect the growth of such services in Butwal city. The regression results show that four factors, i.e. benefit, security, self-efficacy and ease of use are significantly associated with consumers' perception toward e-payment. Interestingly, trust is not significantly associated with consumers' perception toward e-payment.

Limitation of study

As it is an academic report, limited time could be the major constraint for the study. The research was carried out only in Butwal Sub Metropolitian city. Therefore, the findings cannot be fully generalized in other parts of nation or world. There might be other variables which are not undertaken in this study, which may affect the consumers perception. Other limitation could be about the statistical tools. Regression, ANOVA and independent t test are used for analysis however there are other various statistical tools which may vary result and their interpretation.

Implication of the study

Theoretical implications

This study has narrowed the gaps of previous research in terms of investigating the five factors in a single setting. It has advanced the mainstream literature concerning e-payment acceptance, particularly from a country which has shown promising growth in e-payment use in very short period of time.

Practical implications

Overall, the findings confirm the salience of all of the five factors investigated, allowing practical implications from the perspective of strategies to boost e-payment use to be prescribed. It is imperative that the services provided must meet consumers' expectations. Electronic payment methods should prove themselves to be convenient and effective in a lot in order to win greater market share from cash. The findings of the study could serve as a guide to inform the services. Benefits, self-efficacy, security and ease of use appear to be significant factors and therefore warrant extra attention from the banking institutions, online transaction facility providers, and software developers. Any enhancement to the current e-payment system must take into account these characteristics.

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