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The Effect of 3G/4G on Broadband Connectivity Satisfaction in Pakistan

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Abstract

The purpose of study is to find out the effect of 3G/4G on broadband connectivity satisfaction in Pakistan BWP. Broad band connectivity satisfaction is affected by Technology acceptance model. Study is done on the population of Bahawalpur and the sample size was 300. Respondents were 3G and 4G users. Different techniques were used like regression and correlation to analyze the data. Study ensured that there was significant relationship between variables.

Keywords: 3G, 4G, satisfaction Technology Acceptance Model.

Introduction

Wireless communication is common now days. Internet is used as a medium of information technology. With the passage of time different technologies have been introduced from time to time 2g network to 3g and 4g network. 3G depends on innovation that has developed to meet the new requirements for information in remote voice system. 3G gives network connection over substantial scope region with promoted facts rates of 2 to 14 bits/s, shared among all clients associated with any station (Gass & Diot, 2010). 4G, or Fourth Generation network, are intended to enhanced wireless capacity, system speeds, and visual advancements. It is foreseen that as these systems keep on flourishing, the interest for related advancements will develop, technology users can go over their desired expectations by creating new alternatives (Gobjuka, 2009).

Connecting to the internet at a high speed can be obtained by a number of different technologies including DSL, ISDN, fiber T1/T3, satellite, Web TV, wireless and cable connections (EL Davison, 2009).

This study is aim to know about whether the other broadband connections users are satisfied with 3g 4g or not.

Objective

- Effect of 3g on broadband connectivity satisfaction.
- Effect of 4g on broad band connectivity satisfaction.

Problem Statement

The primary goal of this research Paper is to enable concurrent connectivity across multiple available network interfaces in a seamless and efficient manner on mobile devices and Desktop Broadband.

Literature Review

Broadband

It is an idea that rises from telephonic world. Many researchers gave different definitions but main concept is its speed should be more than 2Mbps (Aronsson et al., 2003). It refers to a term of technology which covers wireless or telephone based connections used to communicate faster at low rates than old dial up services (Robert, 2005).

Broadband also referred to technology that gave high speed connection to small business subscriber and huge number of people (Sangwon, 2007). It is suitable for huge data transfer and is faster than narrowband connections (Kidokoro 2007). It is a service which provides fast incoming and outgoing data facility (Becta, 2003; OECD, 2003).

3g

It is defined as the third generation which facilitates the combination of satellite components and has speed of 2Mbps (chong et al., 2010). 3g enables internet access on mobile phones. It provides different services like mobile banking mobile gaming etc (Alain, Keng-Boon, Binshan, & HaiJun, 2012). 3g development in Pakistan has attracted peoples. It is based on the equipment that is invented to cover required need of wireless networks (Richard & Christophe). It is a technology for mobile service providers. In past it covers a particular area but now it covers whole country. Cellular stations are made to support this service. It support high digital communications and based on different technologies like universal mobile telecommunications system. These services offer high bandwidth. First offering of this service was occurred in Japan in 2001 (Lee & William, 2002). Now Pakistan is also using this services and this study is going to find its effect on other broadband connections.

4g

4g referred to fourth generation networks. It is design to enhance the technological benefits and facilitate peoples (Hassan, 2009). It was expansion of 3g to 4g. T-mobile and Comsat step forward and decided to develop 4g (T. & A., 2000). It was very difficult process, it require detailed testing so that any flaws not interrupt the data traffic (T. & A., 2000). The need of developing this service is the increasing use of social media websites, which need wonderful speed in order to use effectively (R., 2009). In 2009, a joint venture was done between Intel and Clear wire for 4g network.

Customer Satisfaction

It is defines as “the difference among actual and expected performance of any goods or services” (Tse and Wilton, 1988, Oliver 1999). Companies will lose their customers if they are not satisfying their needs as compared to their competitors (Anderson, et al, 2004).

According to (Kotler 2003), “satisfaction is a feeling of happiness or disappointment which comes after analyzing the actual and expected performance of services”. Hutcheson and Moutinho (2011) say that if the space between actual and expected performance is less there is more satisfaction.

TAM (Technology Acceptance Model)

There are many theories which are developed for users to make decision of using technology applications. Rogers, gave Innovation diffusion theory, (Venkatesh, Morris, & Davis, 2003) gave Unified theory of acceptance and use of technology,

TAM is mostly used (Kim,, Sundar,, & and, 2011). This model is based on the theory of Reasoned Action, whose focus is on individual's behavior. It measures factors of accepting technology.

Perceived Adaptability (PA)

It is a level of acceptance (Heerink,, Krose,, B.J.A.,, Wielinga,, B.J., & Evers,, 2009). In term of 4g services PA is define as level of things that can be moderate to meet users need. It should be further processed to improve its functioning. Recent researches show that perceived adaptability is key factor in finding user acceptance of technology.

Heerick et al (2008) found that there is positive effect on perceived usability. And it has also positive consequence on perceived usefulness and attitude towards the services.

Perceived processing speed

It is the level of dealing out speed of a service. It has positive effect on quality of technology (Aladwani, & Palvia,, 2002). (Buss,, 1987) argued the association of perceived speed and user perception.

Service and system quality

This term is firstly used by Mclean and Delone. It is elaboratea as "perceived level of act of any service or system. Most of the study's results are in the favor of positive relationship between service quality and user perception. They said that information quality is another important factor of service quality.

Perceived mobility

It is level of user's awareness of value". It is the important factor of perceived usefulness (Huang, & Lin,, 2007). It is also refers to access of usage via wireless connections.

Hypothesis

There is impact of perceived mobility on satisfaction.

There is impact of perceived adaptability on satisfaction.

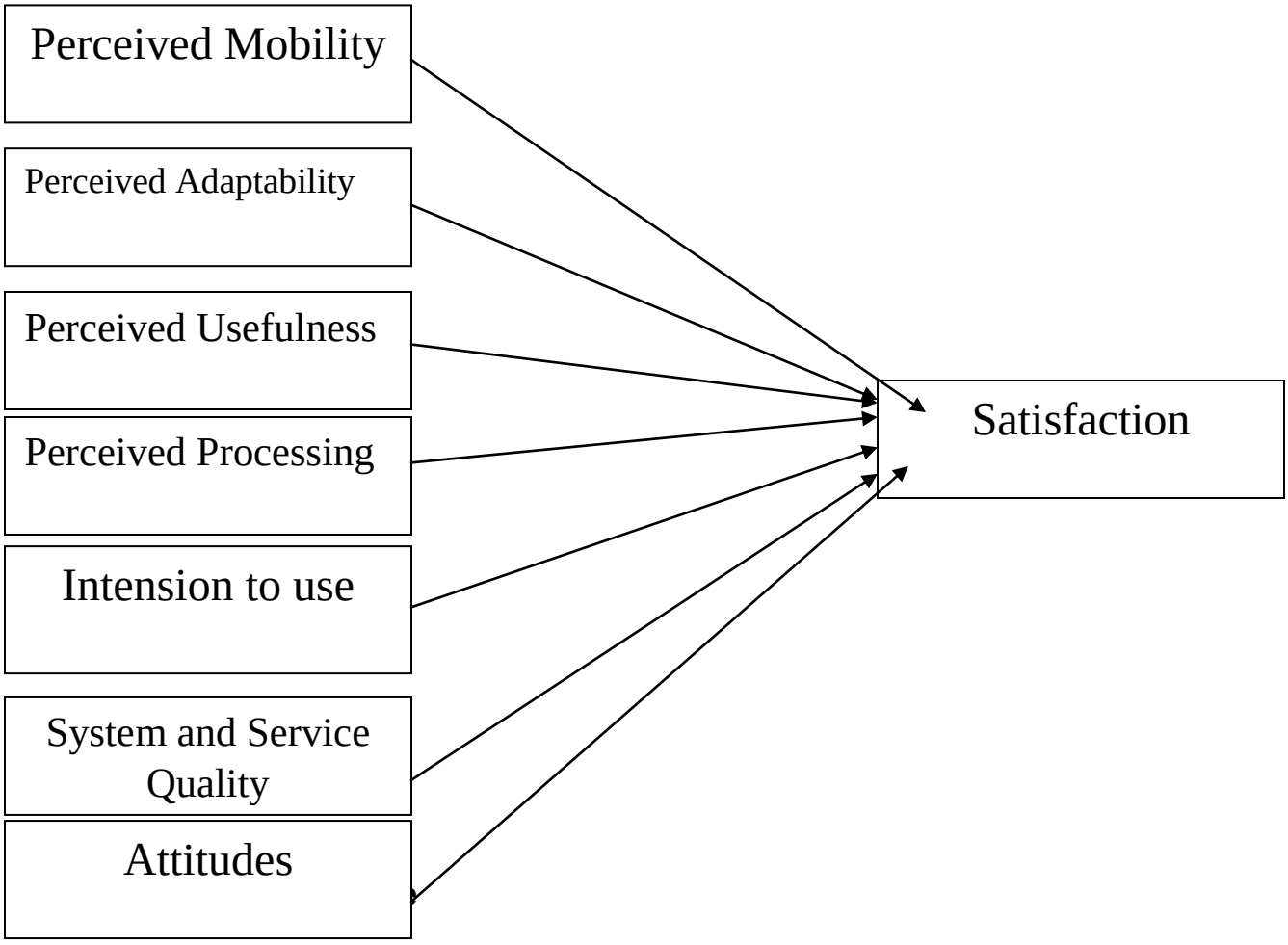
There is impact of perceived processing on satisfaction.

There is impact of Perceived usefulness on satisfaction.

There is impact of Intension to use on satisfaction.

There is impact of Attitudes on satisfaction.

There is impact of System and service quality on satisfaction



Structured questionnaire is taken to collect data. Questioners filled by the Bahawalpur city people. It contains two parts. In first part, questions are asked like gender, age, qualification, mobile brand and income level etc to know about the respondents. Questionnaires are taken from (Huang, & Lin,, 2007), (Kim,, Sundar,, & and, 2011), (Shin, & Choo,, 2011), (Davis,, 1993). The five point Likert Scale is used in it. Other part contains series of questions about perceived usefulness, intension to use, perceived processing, perceived mobility, perceive adaptability, service and system quality, attitude and satisfaction.

Those people are taken in sample that used 3g 4g services. Likert scale is used to know the rating in which 1 is for strongly disagree, 2 is for disagree, 3 is for uncertainty, 4 is for agree and 5 is for strongly agree. SPSS software is used to do analysis on response data

B) Respondent

300 questionnaires were distributed to 3g 4g users in Bahawalpur city via self-administrated method and personal collection. Respondent were allowed to take away and response freely. Out of 300, approximately 200 responses were returned.

Reliability

Cronbach's alpha is used to know the consistency. It provides the average correlation among the variable items (NORAZAH & NORBAYAH). Cronbach's alpha ranges from 0 to 1. More the value is nearest to 1, there is greater reliability. Table shows the alpha value. As alpha is 0.943, it shows that instrument of survey is reliable. Past studies used these construct thus it is validated (Venkatesh, Morris, & Davis, 2003). Standard alpha is 0.07 and according to this 0.943 is very good.

Scale: ALL

Case Processing Summary

		N	%
Cases	Valid	201	100.0
	Excluded[a]	0	.0
	Total	201	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.943	24

Correlation

We use correlation to find the relation between independent variables and dependent variable. If process is systematically related than it is known as correlated. Correlation coefficient is used to measure it (Dulyalak & Settapong). Table shows the relationship. In this satisfaction (dependent variable) is compared with all of independent variables. As satisfaction with all independent variables has significant value below than 0.05, this mean there is significant relationship between variables. Pearson correlation value tells us there is positive or negative relationship or not, relationship is weak or strong. If the value is above 0.5 it shows strong relationship. As seen in table all values are positive and greater than 0.5. This mean satisfaction is correlated with all variables. Perceived adaptability and perceived processing has strong relationship with satisfaction as their Pearson correlation values are 0.667 and 0.652 respectively.

Correlations

		intention to use	satisfaction	Attitude	system and service quaity	perceived usefulnes	perceived adaptability	PMobility	perceived processing
intention to use	Pearson Correlation	1	.541**	.468**	.474**	.445**	.517**	.405**	.525**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000
	N	201	201	201	201	201	201	201	201
satisfaction	Pearson Correlation	.541**	1	.571**	.591**	.573**	.667**	.588**	.652**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000
	N	201	201	201	201	201	201	201	201
Attitude	Pearson Correlation	.468**	.571**	1	.734**	.611**	.560**	.393**	.622**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000
	N	201	201	201	201	201	201	201	201
system and service quaity	Pearson Correlation	.474**	.591**	.734**	1	.557**	.544**	.436**	.698**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000
	N	201	201	201	201	201	201	201	201
perceived usefulnes	Pearson Correlation	.445**	.573**	.611**	.557**	1	.548**	.437**	.600**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000
	N	201	201	201	201	201	201	201	201
perceived adaptability	Pearson Correlation	.517**	.667**	.560**	.544**	.548**	1	.627**	.624**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000
	N	201	201	201	201	201	201	201	201
PMobility	Pearson Correlation	.405**	.588**	.393**	.436**	.437**	.627**	1	.604**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000
	N	201	201	201	201	201	201	201	201
perceived processing	Pearson Correlation	.525**	.652**	.622**	.698**	.600**	.624**	.604**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	
	N	201	201	201	201	201	201	201	201

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

Regression analysis:

The regression table 1(model summary) shows the values in which adjusted R square value is most important. It tells about the variance percentage of dependent variable affected by independent variables. The R square value 0.597 tell that 59% variance in satisfaction is due to perceived mobility, perceived adaptability, perceived usefulness, perceived processing , system and service quality, attitude and intension to use.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.773[a]	.597	.582	.60241

a. Predictors: (Constant), intention to use, PMobility, Attitude, perceived usefulnes, perceived adaptability, system and service quaity, perceived processing

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	103.798	7	14.828	40.861	.000[a]
	Residual	70.039	193	.363		
	Total	173.837	200			

a. Predictors: (Constant), intention to use, PMobility, Attitude, perceived usefulnes, perceived adaptability, system and service quaity, perceived processing

b. Dependent Variable: satisfaction

ANOVA table told us that our result is significant or not. As significant value is below than 0.05 this mean our result is significant.

Coefficient table tell about the combined effect of the variables. It shows that there is no relationship between independent variables as vif value of variables is less than 5.

While all variables tolerance value should be more than 0. 2.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.028	.220		-.127	.899		
	PMobility	.160	.058	.172	2.738	.007	.526	1.901
	perceived adaptability	.255	.073	.240	3.479	.001	.438	2.281
	perceived usefulnes	.114	.058	.124	1.958	.052	.523	1.913
	perceived processing	.145	.082	.135	1.756	.081	.352	2.837
	system and service quaity	.112	.077	.110	1.452	.148	.363	2.753
	Attitude	.060	.071	.063	.855	.394	.383	2.613
	intention to use	.137	.056	.139	2.445	.015	.645	1.551

a. Dependent Variable: satisfaction

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions							
				(Constant)	PMobility	perceived adaptability	perceived usefulnes	perceived processing	system and service quaity	Attitude	intention to use
1	1	7.793	1.000	.00	.00	.00	.00	.00	.00	.00	.00
	2	.053	12.176	.06	.23	.02	.09	.00	.05	.14	.02
	3	.040	14.017	.19	.25	.01	.08	.01	.00	.00	.39
	4	.033	15.369	.00	.02	.00	.73	.01	.14	.06	.06
	5	.030	16.141	.73	.02	.00	.02	.00	.00	.00	.47
	6	.021	19.277	.00	.01	.44	.03	.21	.12	.28	.01
	7	.017	21.213	.02	.42	.52	.00	.13	.05	.34	.04
	8	.014	23.743	.00	.06	.01	.05	.63	.64	.19	.01

a. Dependent Variable: satisfaction

Conclusion

The effect of 3g 4g services on other broadband connections are seen in this study. Results show that there is significant relationship between perceived usefulness, perceived mobility, perceived processing, quality and intension to use on satisfaction of bahawalpurian. I.V's have impact on D.V. Satisfaction is most important factor that telecommunication service providers are focusing now a day. If they are satisfied than they create positive word of mouth. Respondents are only the users of the 3g & 4g services. The Cronbach's alpha value is greater than 0.7. Perceived adaptability and perceived processing has strong positive effect on satisfaction. Hence the entire hypotheses are accepted.

This study recommends that future researchers should evaluate these variables with price factor so that they find out its impact too.

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