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Examining the Usage Pattern of Mobile Phone Services in Rural Punjab

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As the mobile phone services in urban market has shown a phenomenal spurt in the growth of tele-density and on the verge of saturation, rural market has become a significant frontier for industry growth. The creation of Universal Service Obligation (USO) Fund and various policy initiatives have been taken by the Indian government to enhance the rural telecom growth and to reduce the widening gap between urban and rural tele-density. To accelerate the rural growth possible, mobile service providers are constantly facing certain challenges in confronting the rural market-understanding rural consumer and communicating with the heterogeneous rural audience. While mobile phone services usage in rural areas has not been explored as much in academic literature, the paper is an attempt to understand the relationship of consumer skills, service provider support and willingness of the rural consumer. Paired difference t-test was used to analyse the average difference between the current and desired use of technology and support of service provider. Based on a sample of 450 rural consumers, the mean differences were statistically significant at 0.05 per cent demonstrating, firstly, that number of rural mobile users who desired the future use of mobile services exceeded the users who currently used the mobile services and secondly, the rural consumer desired more service provider support to adopt the mobile services.

Introduction

Over the past few years, mobile phone adoption have generated a significant amount of hype and interest especially in India, where wireless industry is the fastest growing market in whole of the Asia-Pacific region. But, Indian telecom infrastructure in rural areas is increasing day by day but lagging behind the expected levels and consequently, the gap between the urban and rural tele-density has been increasing. The urban tele-density has surged over 101 per cent, while rural tele-density has gone up to only 18.97 percent (domain-b.com, December 2009). The main challenge is to deliver a mobile service to rural users that can not only be viable, but be profitable at low levels of Average Revenue Per User (ARPU). Experiment such as Hindustan Lever's project Shakti, ITC's e-chaupal and n-Longue's etc., are an attempt to wiring up rural India. The efficient policy development is required at the government and corporate level, but at the same time, the actual conditions at the ground level for the effective penetration of mobile market in rural areas cannot be neglected.

Review of Literature

Frempond (2009) has examined the contributions of mobile telephones to the development of micro and small enterprises in less urban and rural areas of Ghana. Invariably the technology improved the efficiency of these operatives and boosting their competitiveness. The majority of the respondents were positive about the impact of mobile telephones on their businesses in terms of ease of contact with customer and suppliers, reduced cost of transportation and profitability.

Dunn (2009) analyzed how the prevailing widespread and popular access to mobile phones among Jamaica's poor might be used to support the public policy goal of transitioning these users from mainly voice to more advanced applications, including m-government,

personal educational growth and teleworking, via increased connectivity to mobile internet and other forms of broadband access. The study showed the positive disposition among Jamaicans of all social classes for the use of higher levels of work related communications technologies, once these are priced in a manner that make them accessible. Mobiles are potential bridges for low-income users from their present voice-dominated usage to higher end applications such as further education, better access to public services and other more intensive work-related uses.

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Kesti and Ristola (2003) investigated consumer intentions to use different mobile services. To this end mobile services had been tested in a real, interactive situation by voluntary test users. This paper also considered the needs people see themselves having in the mobile commerce context in the future. The field trial's focus was on testing mobile services and technology in an actual end user environment. The main findings of the study indicated that the perceptions users got from testing mobile services affect their intention to use those kinds or similar services in the future. The results also indicated that there are significant differences when examining two kinds of groups; low interest users and high interest users. The test users regarded the guidance services as the most important, followed by mobile ads and communication services. Furthermore, there were statistically significant differences in means between different types of users and their evaluation of the three services groups.

Objectives of the Study

The paper attempts to study the present and expected adoption of mobile phone services by the rural people. Since the behavioural pattern of rural consumers is starkly different from region to region (Pareek 1999, p.58), they require more attention and efforts so that they can adopt the technology constantly without any complexity. So, the study also explores the service provider's efforts to get rural people aware about the technology and their future expectation from the mobile service provider.

Methodology

The study is based on primary data collected from the 450 adopters of mobile phones in the rural areas of Punjab state with the help of well drafted, pre-tested, and structured questionnaire in Punjabi (regional language) and English. The respondents being the adopters of mobile phone services are selected by following the non-probabilistic and convenience sampling techniques. It will be necessary here to mention two things; firstly, in convenience sampling, respondents who were seen using/have possession of mobile phones are selected because they happen to be in the right place at right time and secondly, convenience sampling is not recommended for descriptive or casual research, but it can be used in exploratory research for generating ideas (Malhotra, 2005). Since there is a gap in the literature to know the rural people usage pattern of mobile phone services and their desirability and also the service provider present and desired support to make them aware about the services, 11 prevalent services were selected. The calling service was again bifurcated into two parts as work related calls and social call and mobile banking service had been dropped as there was hardly any person in the villages having adopted mobile banking service, resulting into 10 mobile phone services as a base of the study.

Data Analysis

Previous studies on mobile phone services as well as theories of consumer behaviour have shown

Table No. 1: Demographics Characteristics of Sampled Respondents

Gender			Age			Occupation			Education			Income		
	Number	%		Number	%		Number	%		Number	%		Number	%
Male	33	73.3	<20 Years	59	13.1	Farmers	13	30.9	Below Matric	84	18.7	< Rs. 10,000	16	36.7
Female	0	26.7	20-30 Years	18	40.0	Micro Entrepreneurs	9	24.9	Matric	88	19.6	10,000 – 20,000	5	31.8
	12		30-40 Years	0	26.0	Employed	11	18.2	Higher Secondary	95	21.1	20,000 – 30,000	14	20.4
	0		40-50 Years	11	11.8	Businessmen	2	12.0	Graduation	95	21.1	> 30,000	3	
			>50 Years	7		Professionals	82	9.3	Post Graduation	52	11.6		92	11.1
				53	9.1	Students and others	54	4.7	Vocational Courses	36	8.0		50	
				41			42							
							21							

Source: Compiled by the Author from research data

demographics to be a factor influencing the adoption of technology-based product and services (Agarwal and Prasad, 1999). The demographic characteristics of the respondents depict that male members have the majority (73.3 percent) in using the mobile phones over the female members (26.7 per cent). 40 percent of the respondents belong to the age group of 20-30 years revealing that the adopters of mobile services are relatively young. It is further disclosed that the farmers comprise the maximum proportion (30.9 percent) followed by Micro-entrepreneurs (24.9 percent) give an idea that mobile phone is beneficial for the rural people who are engaged in agricultural and small businesses. The table no. 1 also shows that most of the respondents (59.4 percent on cumulative basis) belong to less than or equal to higher secondary level signifying the critical dimension for the adoption and expansion of mobile services in rural areas. As far as the income level of the respondents is concerned, most of the respondents (36.7 per cent) are below Rs.10,000 income level followed by (31.8 per cent)to Rs. 10,000-Rs.20,000 representing the idea of fixation of low charges for mobile phone services usage in rural areas by the service providers.

Research Question No. 1

What is the current adoption of mobile phone services in the rural areas and what is the desired future adoption of mobile phone services?

Table 2: Current Use of Mobile Phone Services

Services	Never Use	Rarely	Occasionally	Often	Constantly	Total
Work Related Calls	47	53	173	**129(28.66)**	48	450
Social Calls	49	51	167	**133(29.55)**	50	450
SMS	39	47	146	**140(31.11)**	78	450
Gaming	69	75	144	**118(26.22)**	44	450
Mobile Internet	89	99	103	**95(21.11)**	64	450
Music	68	83	146	**114(25.33)**	39	450
Updates of Agriculture/commodity Prices	52	82	150	**122(27.11)**	44	450
News/Sports Updates	37	62	142	**135(30.00)**	74	450
Horoscope	101	57	140	**112(24.88)**	40	450
Ring Tones and Downloads	42	78	136	**124(27.55)**	70	450
Weather Report Updates	64	61	139	**118(26.22)**	68	450

Source: Compiled from research data

Table 3: Desired Use of Mobile Phone Services

Services	Never Use	Rarely	Occasionally	Often	Constantly	Total
Work Related Calls	32	48	53	68	**249(55.33)**	450
Social Calls	35	40	47	62	**266(59.11)**	450
SMS	38	36	58	75	**243(54.00)**	450
Gaming	37	49	47	74	**243(54.00)**	450
Mobile Internet	44	47	54	76	**229(50.88)**	450
Music	36	39	49	91	**235(52.22)**	450
Updates of Agriculture/commodity Prices	29	32	42	80	**267(59.33)**	450
News/Sports Updates	31	36	38	89	**256(56.88)**	450
Horoscope	35	41	40	83	**251(55.77)**	450
Ring Tones and Downloads	44	50	58	67	**231(51.33)**	450
Weather Report Updates	48	40	55	69	**238(52.88)**	450

Source: Compiled from research data

Table 2 shows that presently some of the respondents are oftenly using mobile services about once or twice in a day, but however, Table 3 reveals that an overwhelming number of rural people desire to use mobile services several times in a day.

Paired difference t-test was used to analyse the average difference between rural people current and desired use of mobile phone services. With the size of 11, average difference of 102.00 and the standard deviation 14.04, the test submit a simple t-test with n-1 degree of freedom. The computed t-test specifies that the mean difference is statistically significant at 0.05 level for p-value of .000 rejecting the null hypothesis and the test also signifies that the number of rural people who desired the future use of mobile phone services significantly exceed the number of rural consumers who are currently using the mobile phone services with p-value of 1.000.

Research Question No. 2

What are the present and desired activities of mobile services provider in rural areas to get people aware about the use of mobile phone services?

Table No. 5 depicted that the present activities of service providers to get rural people aware about the mobile phone services is negligible indicating the major reason for slow adoption of mobile phone services in rural areas.

Table No. 6 represented the desired activities to be initiated by the service providers to get them aware about the use of mobile phone services as the rural people are ambitious to adopt mobile services if they got aware about how to use mobile phone services.

Paired difference t-test was used to analyse the average difference between the current and desired activities of service provider in rural areas to get people aware about the use of mobile phone services. With the size of 4, average difference of 58.00 and the standard deviation 33.35, the test submit a simple t-test with n-1 degree of freedom. The computed t-test specifies that the mean difference is statistically significant at 0.05 level for p-value of .000 rejecting the null hypothesis and the test also signifies that the number of rural people who desired more activities from service provider.

Conclusion

Rural telecommunication has been a significant area where the government has been emphasizing to

Table 4: Paired difference t-test for current and desired use of Mobile Phone Services

Services	Desired Use	Current Use
Work Related Calls	249	173
Social Calls	266	167
SMS	243	146
Gaming	243	144
Mobile Internet	229	103
Music	235	146
Updates of Agriculture/commodity Prices	267	150
News/Sports Updates	256	142
Horoscope	251	140
Ring Tones and Downloads	231	136
Weather Report Updates	238	139

Size	11.0000
Average Differen	102.000
Std. Dev. Differen	14.04279

Test Statistics	24.090
df	10

Hypothesis Testing **α**

	p value	5%
$H_o: \mu_1 - \mu_2 = 0$	***.000***	Reject
$H_o: \mu_1 - \mu_2 > 0$	***1.000***	
$H_o: \mu_1 - \mu_2 < 0$	***.000***	Reject

Source: Calculated by author

Table 5: Present Activities of Service Provider in Rural Areas to get aware about Mobile Phone Services(MPS)

Service Provider Activities in Rural Areas	Never Use	Rarely	Occasionally	Often	Constantly	Total
Pictorial Pumphlets in Regional Lang.	**302**	94	24	21	9	450
Visit(s) of Representatives to train/aware	**258**	88	48	34	22	450
Special Training Program/Campaign	**283**	109	24	21	13	450
Customer Care Support to operate MPS	**203**	137	37	31	42	450
Total	**1046**	428	133	107	86	1800

Source: Compiled from research data

Table 6: Desired Activities of Services Provider in Rural Areas to get people aware

Service Provider Activities in Rural Areas	Never Use	Rarely	Occasionally	Often	Constantly	Total
Pictorial Pumphlets in Regional Lang.	11	16	18	**348**	57	450
Visit(s) of Representatives to train/aware	14	15	28	**353**	40	450
Special Training Program/Campaign	15	31	29	**301**	74	450
Customer Care Support to operate MP	14	16	30	**276**	114	450
Total	54	78	105	**1278**	285	1800

Source: Compiled from research data

Table 7: Paired difference t-test for current and desired activities of Mobile Service Provider

Services	Desired Use	Current Use
Pictorial Pumphlets in Regional Lang.	348	302
Visit(s) of Representatives to train/aware	353	258
Special Training Program/Campaign	301	283
Customer Care Support to operate MP	276	203

Source: Calculated by author

Size	4.0000
Average Differen	58.000
Std. Dev. Differen	33.35666

Test Statistics	3.478
df	3

Hypothesis Testing **α**

	p value	5%
$H_o: \mu_1=\mu_2$	***.040***	Reject
$H_o: \mu_1-\mu_2>0$	***.980***	
$H_o: \mu_1-\mu_2<0$	***.020***	Reject

bring down the widening gap between the urban and rural tele-density. Several measures have been taken and many others are in queue to make rural telecom more accessible. In order to understand the impact of these measures and policies, it becomes imperative to know what actually rural consumer perceives. This exploratory study particularly emphasizes to increase the in-depth understanding of rural consumer regarding mobile phone market. The study highlights the much-unexamined area regarding the current and desired use of technology and the service provider support to get rural people know about the use of technology. The results of the study indicate that the most of the respondents had the education level of higher secondary or below higher secondary; this might be the reason that the rural respondents were not able to adopt the mobile phone services fully. It was quite evident from the results of the study that rural people showed their more desirousness to use the mobile phone services in future than currently and they also desired more support from the service providers than currently provided to enable them to use the mobile phone services. The research presented also has practical implications for mobile service providers and policymakers who have to make strategies and decision in order to cater to this hitherto unexplored new technology-based service market.

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