

Inference Model for Computer Literacy and Usage Pattern among Rural Population of Piravom Grama Panchayat, Ernakulam District, Kerala, India

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KEYWORDS Digital Divide. Information Communication Technology. Internet Access

ABSTRACT A study was conducted among the rural population of Piravom Grama Panchayat to determine the computer literacy and usage in August 2009. This panchayat was chosen as it is one of the rural panchayats with backward economy and education. The objective of the study was to find out the percentage of houses with computers, percentage of houses with computers and internet connection, percentage of people using computers, percentage of people employed in IT and related sectors, percentage of people who have passed any computer course, to analyze the usage pattern based on gender, to analyze the usage pattern based on age and to investigate the factors behind the low usage of computers. Random sampling technique was used in the selection of the sample. The results revealed that majority of the houses are not having computers and people who have access to internet is low. Among the people using internet, most of them falls under the age group 15-30. The various reasons for not using computers were lack of computer education, money and occupational reasons. Even those who have access to computers are not exploring the features of Information Communication Technology to a great extent.

INTRODUCTION

Information and Communication Technologies (ICT) can offer vast advantages to the whole mankind. The opportunities for social and economic development are not availed by the people because of inaccessibility and lack of information. This information could be used for trade, online education, on line payment of bills, e-governance and many other applications that solve vital problems in the developing countries like India. It could open up new possibilities for more transparent and efficient public administration or governance everywhere. It could distribute knowledge and expertise in the areas of education and public health from the centers of expertise to the remote corners of our country but the advantages of ICT are not reaching to the people who need it most. Its benefits are going mostly to those who are already well-placed. It has given birth to a new kind of division not only

at international level but also at national level. (Kumar 2008)

According to Kumar (2008), industrialized countries with only 15% of the world's population is having 88% of the Internet users. Barely 6% of the world's people have ever logged on to Internet and 85 to 90 per cent of them are in industrialized countries. Less than 1% of the people in South Asia are online even though one fifth of the world's population lives here. There are only one million internet users on the entire continent of billion plus people. In India, the number of personal computers installed is 7.5 million of which four metros Delhi, Mumbai, Chennai and Calcutta accounted for 53%. India has a low teledensity of 3% for land lines and the target for 2008 was to get the number 20 per thousand. (Kumar 2008).

There are many reasons which are responsible for the existence of Digital Divide¹. The non-availability of a reliable Information Communication Technology (ICT) Infrastructure to access the Internet is the most predominant one. The ICT infrastructure of a country is determined through a number of measures like number of personal computers, number of telephone connections etc. Even if the infrastructure is available, it is lacking speed, reliability and cost

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effectiveness. There is the cost of accessing the Internet which includes telephone tariff, cost of Internet Service Provider and cost of computer. The quality of service provided by Internet Service Provider is also important as it becomes difficult to exploit benefits of Information Communication Technology with backward technology and poor quality of services. Only those who are not only literates but computer literates can really benefit from Information Communication Technology. In developing countries, Governments are still trying to make people computer literate. Though Internet is a vast reservoir of knowledge and information, the relevant material in one's own language is not available. There must be availability of web content in the language of the user (<http://www.indiatogether.org/opinions/scitech/ddivide.htm>).

The absence of relevant content may act as a barrier to Internet access. Low E-readiness² is another factor that acts as a barrier for internet access. The e-readiness of the society primarily depends upon availability of skilled human resource that is capable of using, improving, innovating and adapting the new technologies. The different segments of the society namely the households, business, the government etc. should be willing to accept and absorb Information Communication Technology.

According to Subhash (1999), the value of IT for rural development is accompanied by the dilemma for the decision makers and multilateral funding agencies that the very limited resources for rural development should be applied to developing IT capacities or other high priorities such as schools, hospitals or dispensaries. ICT projects should be introduced based on the assessment of local needs. ICT projects must be introduced in local language and it should be economically sustaining (http://www.mit.edu/people/kken/papers/Intro_Sage.html).

Much of the IT-led economic growth in India in recent years has been driven by industries located in large cities since urban areas typically have the best infrastructure and educational facilities that are critical for the growth of information technology. Such growth has completely bypassed rural India (<http://www.globalgiving.com/pfil/738/projdoc.doc>). The present paper is an attempt to explore the Digital Divide and to investigate the factors for low computer usage that prevails among rural population.

Statement of the Problem

To find an inference model for the computer literacy and usage pattern among rural population and to investigate the factors for the low use of computers among this population.

Objectives

1. To analyze the usage pattern of people based on gender.
2. To analyze the usage pattern of people based on age.
3. To investigate the factors for the low use of computers.
4. To find out the percentage of houses having computers.
5. To find out the percentage of houses with internet connection.
6. To determine the percentage of people who have passed any computer or related courses.
7. To find out the percentage of people employed in IT and related sectors.

Hypothesis

1. Majority of the rural population are not using computers.
2. Men are accessing internet than women.
3. Men are having more access to computers at workplace than women.
4. Men are using computers more for educational purpose than women.
5. Major causes for the low use of computers are economic, educational and occupational reasons.

Universe

Piravom Grama Panchayat is situated in Ernakulam District of Kerala State. This is a rural Panchayat with 15 wards and a geographical coverage of 29.35 square kilometer. There are around 6750 houses and a total population of 27263 people. Majority of the people are farmers, home makers, working for daily wages or running small business. Many of them not even have education up to tenth standard. Even people with education up to 12th standard opt to work rather than going for higher education. Many of them are having a low annual family income.

MATERIAL AND METHODS

Sample

Random method of sampling technique was used in the selection of sample for the study. A sample of 500 houses and 2000 people from various areas of Piravom Grama Panchayat was taken. It is an exploratory, descriptive and analytical study aimed at bringing out the computer literacy, usage pattern, Digital Divide and its causes.

Tools

A detailed questionnaire was used to elicit the information regarding the usage pattern, computer literacy of the people. The information about houses with computers and internet connection were also collected. Structured interviews were conducted with individuals for collecting data about the usage pattern. The president of Piravom Grama Panchayat and elected members of various wards were also interviewed.

RESULTS AND DISCUSSION

In the case of use of computers, a detailed analysis was done based on gender, age and the purpose of use. The results showed the great digital divide that exists among the rural population. Only 37% of the total population irrespective of gender and age are using computers. Around 63% of the population are not using computers or not having access to computers (Table 1).

When split on gender, it was found that 32.3%

among men and 24.2% among women are using computers. Among children, 77.9% are using computers. The women, showed a lower percentage as many women among this population are home makers or farmers. Among the men using computers, they are accessing it at their workplace than at home because only 23% of the houses are having computers. The reason for high percentage for children accessing computers is that many schools provide computers to children for playing games or drawing pictures or for educational purpose. The split up showed that 67.7% among men, 75.8% among women and 22.1% among children are not using computers (Table 1).

A detailed analysis was done after splitting up on age and gender. It was found that most people who use computers fall under the age group 21 to 30 for both men and women. The least was found among the age group 51 and above. The other age groups need to improve the use of computers which will considerably reduce the digital divide in this society.

Another analysis was done on the purpose of use of computers after splitting up on gender and age. This was done to find out whether the computers are used effectively or not. The effective use includes the use of computers for educational purpose, at workplace for job based needs and for accessing the Information Communication Technology or Internet. The non effective purpose includes the use of computers for entertainment like playing games, listening to music or watching movies (Table 2).

The results showed that out of the total computer users, 31% uses for playing games, 33.5% for hearing music, 39.7% for watching movies. 47.7% uses it for educational purpose, 30.6 % for Internet access, and 27.7% for job based

Table 1: Percentage of people using computers split on gender and age

Description	Age group (in years)	Children		Men		Women		Total	
		N	%	N	%	N	%	N	%
No. of people using computers	3-14	282	77.9					282	
	15-20			53	20.3	45	22.4	98	
	21-30			85	32.6	77	38.3	162	
	31-40			51	19.5	37	18.4	88	
	41-50			37	14.2	22	10.9	59	
	51 and above			35	13.4	20	10.0	55	
	Total	282	77.9	261	32.3	201	24.2	744	37.0
No. of people not using computers	Total	80	22.1	546	67.7	630	75.8	1256	63.0
	Total	362		807		831		2000	

Table 3: Mean, standard deviation, correlation, predictor line and Z score for the usage pattern based on gender

Usage pattern	Gender	Mean	S.D	Correlation	Predictor line	Z score
Internet	Men	26.6	15.97	0.853	Men=7.4+1.28	2.96
	Women	15	10.65		Women (p=0.066)	
Education	Men	26.8	26.8	0.948	Men=4.5+1.02	-0.62
	Women	21.8	16.81		Women (p=0.014)	
Workplace	Men	27.6	9.607	0.885	Men=17.9+0.715	4.42
	Women	13.6	11.887		Women (p=0.046)	

access internet and 29.4 % of men in this age group use for learning purpose. It was also found that 47.1% of men in this age group use computers for hearing music which is higher than those accessing internet. For women in this age group, the highest percentage (48.6%) showed for both learning and watching movies. Only 35.1% of women in this age group are accessing internet and 37.8% of women have computers at their workplace.

Among the computer users of the age group 41 to 50, when men are considered, the highest percentage (54.05%) showed for access to computers at workplace. Only 29.73% of men in this age group are accessing internet which is lower than using computers for hearing music and watching movies (37.84%). For women, the highest percentage (45%) showed for using computers for educational purpose and for watching movies. 41% of women in this age group are accessing internet and 32% are having access to computers at workplace.

Among the computer users of the age group 50 and above, the highest percentage (51.4%) for men showed for access to computers at workplace. 37.1% of men uses internet in this age group and for educational purpose. In the case of women the highest percentage (40%) showed for access to computers at workplace. Only 20% of the women in this age group uses internet while 35% of women use computer for watching movies. 15% of women in this age group use computers for educational purpose.

In the case of internet users, men and women are not very closely related to each other. 72% of the total variation is explained by the predictor line. Here ($p>0.01$) regression is not much significant. For men and women using computers for educational purpose, both are highly related to each other. 90% of the total variation is explained by the predictor line. Here ($p<0.01$) regression is much significant on gender. In case of men and women using computers at workplace,

78% of the total variation is explained by the predictor line. Men and women are not very closely related to each other. Here ($p>0.01$) is not much significant (Table 3).

When tested, the significant difference between the gender in the usage pattern of internet is $p=0.02<0.01$. The inference is that males are having more access to internet than females as per the hypothesis. In the case of usage pattern of computers for educational purpose $p=0.7>0.01$. Men and women are using computers for educational purpose in the same level as against the hypothesis. In the case of access to computers at workplace, there is significant difference between genders. Here $p=0.000<0.01$. The inference is men are having access to computers at workplace than women as per the hypothesis.

The result of the above study shows that only 12% of the houses are equipped with computers and internet connection which means 88% of the houses are lacking access to Information Communication Technology. This shows the great digital divide that prevails among the rural population. Out of the 88%, the percentage of houses having computers without internet connection is 11% and can overcome the digital divide if internet connection is provided. The remaining 77% of the houses are not having computers (Table 4).

Table 4: Percentage of houses with computers and internet connection

Sample (n=500)	N	%
Houses with computers and internet connection	60	12
Houses with computers alone	55	11
Houses without computers	385	77

In the case of Computer Literacy, the percentage of people who have passed or attended or attending a computer course comes around 29.69%. The employment in IT and related sectors from this rural population is 1.64% (Table 5).

Table 5: Percentage of people who have passed/attended any computer course and employment in IT and related sectors

<i>Sample n=1638 (Excluding children in age group 3-14)</i>	<i>N</i>	<i>%</i>
People who have passed / attended any computer course	486	29.67
People employed in IT and related sectors	27	1.64

Here the number of samples coming under economic reasons and occupational reasons are same say 222 out of 1256. (Table 6). The null hypothesis taken as people not using computers due to educational reasons is higher than people not using computers due to economic reasons or occupational reasons. Here we get the p value as $0.000 < 0.05$. We reject the null hypothesis. So the number of people not using computers due to educational reasons is significantly higher than the number of people not using computers due to economic reasons as well as occupational reasons.

Table 6: Causes for not using computers

<i>Sample n=1256 (Total No: of men and women not using computers)</i>			
<i>Gender</i>	<i>Educational reasons</i>	<i>Economic reasons</i>	<i>Occupational reasons</i>
Men	320	124	102
Women	412	98	120

RECOMMENDATIONS

Subsidies can be given to people below a certain annual family income for purchasing computers and getting internet connections. Internet should be provided at public places like libraries at free of cost. Low cost personal computers like NetPCs can be opted. The infrastructure for accessing internet needs to be

upgraded. The type of Internet connections should be upgraded to broadband, cable or wireless from the existing dial-up connections. Akshaya Centers should be provided for each ward with sufficient faculty and internet connection. These centers should also be used for making aware of the public about E-governance activities. Compulsory computer education which includes how to send E-mails, and how to participate in E-governance activities should be enforced up to standard 12. The individuals participating in governmental activities like filing of taxes, renewal of licenses should be restricted to online mode so that all individuals will learn how to use it.

NOTES

1. Digital Divide is the disparity or difference between two groups- People having access to Information Communication Technology and those who have not.
2. E-readiness is the capacity of the society to incorporate Information Communication Technology in all its pursuits.

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