PRESENCE OF DIGITAL DIVIDE IN INTERNET USAGE AMONG STUDENTS IN HIGHER EDUCATION

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ABSTRACT -

The present study attempts to find out the digital divide present among students of the University of Lucknow, Lucknow. The main objectives are to assess the digital divide among rural and urban students in terms of frequency, training and skills, and purpose of using the internet. To fulfil these objectives, a survey method was adopted and a structured questionnaire was used to collect data. A sample of 100 students was collected comprising 50 students with rural background and 50 with an urban background. The findings revealed that there is an association between Internet usage and residential background of the students, concluding there exists a digital divide in internet use. This study also makes some suggestions to bridge the digital divide among students.

Keywords : Internet; Internet Use; Digital Divide; Lucknow University

INTRODUCTION

Living in this new digital era of the 21st century where technology brings us together every day to stay inter-connected, nonetheless, it also divides us into 'haves and have nots.' The concept of the Digital Divide is not new. In 1995, the term 'digital divide' first appeared in several newspapers in the United States. It was backed by data in the report "Falling through the Net", published by the National Telecommunications and Information Administration, which talked about 'haves and have nots' (NTIA, 1995). Most commonly, it is defined as a division between people who have access and use of information and communication technology and those who do not. (Dijk, 2017)

According to Organisation for Economic Co-operation and Development (OECD, 2001), Digital Divide refers to "the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities."

Digital divide can be broadly classified in three levels: first level is defined in terms of difference in material or physical access to ICT and internet, second level differentiates in terms of skills and uses of the internet and third level represents the difference in the benefits of using the Internet. (Shyam and Das, 2020)

The digital divide goes beyond the mere access to technical infrastructure to the social the infrastructure that supports ICT. This includes various socio-demographic factors such as income, gender, race, ethnicity, education, age and location, as well as the institution. In the present scenario, where access to technology and the internet is getting more convenient and cheaper by the day, socioeconomic factors, and residential background being one of them contribute much to widening the gap of the digital divide. The focal point of the notion of the digital divide is that people with urban background have better access and knowledge of ICT than the ones from rural areas.

The present study attempts to shed light on whether there exists a digital gap in internet usage among the students of higher education taking residential background as a factor causing such disparity.

REVIEW OF LITERATURE

Shyam and Das (2020) worked on the Digital Divide. The study is based on relevant information gathered through of e-survey of the literature and from various libraries in India. The research gave a holistic view of the digital divide to help researchers understand the digital divide and encourage them to study the digital divide for the different levels in developed and developing countries.

Dutta (2020) researched on dimensions of digital divide in India. The study discussed in detail the various determinants like age, gender, education, marital status etc that are responsible for the Digital Divide in India.

Soomro et al. (2020) studied the digital divide among 322 teachers of government and private sector universities in the province of Sindh of Pakistan. The study found that ICT access was not universal among the faculty, highlighting the existence of the digital divide concerning their personal and positional categories including age, gender, and university type.

Aswathi (2019) studied the digital divide among students of Universities in Kerala. A sample of 700 students was selected from 4 universities in Kerala by the investigator. The findings revealed that male students were better positioned towards access to digital devices than female students. Lack of access to the Internet among female respondents was higher when compared to their male counterparts. The students living in urban areas are significantly more likely to have Internet access when compared to those living in rural areas.

Basharat et. al. (2019) worked on digital divide among undergraduate students. The scope of the study is limited to two Districts viz. Kupwara and Srinagar. The findings revealed that the user population is widely distributed in their opinion about the use of Digital Information Resources. It further concluded that there is a significant difference in students of various faculties for not using Digital Information Resources. Rai (2019) worked on the digital divide in higher education. A total of 623 library users and 26 library professionals from the University of Delhi were part of the study. The study revealed a total of 90.6% (556/614) users has an internet connection in their homes. Out of 544 aware users, 26 users never used online resources of their university. There is a very marginal gap between men and women in ownership of the personal computer.

Aswathi and Haneefa (2015) also studied digital divide among students. This study gives an overview of different factors contributing to the digital divide among students including culture, social capital, parental and teacher support, economic capital, ICT literacy, gender divide, geographical difference and more.

Jones et al. (2009) worked on internet use and digital divide among U.S. college students. A survey was conducted at 40 U.S. higher education institutions, along with observations and interviews at several Midwestern U.S. universities. The results suggest that the Internet is relevant to different users in different ways and, therefore, that the concept of a digital divide is indeed a complicated construction in practice.

OBJECTIVES OF THE STUDY

The review of the studies mentioned above reveals that there is much literature available on digital divide among students in India and abroad. The studies highlight digital gap present in ICT infrastructure and use; they are based on parameters such as age, gender, education, and other socio-economic factors that are a cause for the same. The present study endeavours to find out the digital divide in the Internet usage among students of the University of Lucknow by taking residential background as a variable. The specific objectives based on the aim of the study are:

To assess the digital divide among rural and urban students in terms of

- frequency of internet usage;
- training and skills possessed of using the internet; and
- purpose of using the internet.

To suggest the possible solutions to bridge the digital divide among students.

METHODOLOGY

Most of the previous studies conducted on the Digital Divide are survey based. The present study also adopts the survey method to find out the presence of the Digital Divide in Internet usage among the students of University of Lucknow. A well-structured questionnaire has been used for data collection for this study. Data has been collected from a sample of 100 students of the University of Lucknow using Purposive sampling method. The sample comprises of 50 students from rural and 50 from an urban background. The data collected by means of questionnaires is interpreted using Microsoft Excel and is represented through tables and graphs.

To understand the relation between the internet usage of the students and their residential background, and to make the study more precise by identifying the association residential background of students in respect of the frequency, training received and purpose of internet usage, chi-square test has been used. Chi -square test is a non-parametric test used to check if there is an association between any two variables.

The formula for calculating Chi-square is:

$$x^2 = \sum \frac{(\mathbf{0}_i - \mathbf{E}_i)^2}{\mathbf{E}_i}$$

Where,

O stands for the observed frequency,

E stands for the expected frequency.

The following null hypotheses have been formulated and tested based on the data collected:

Data Analysis & Interpretation

Demographic Profile of Students

Ho₁: There is no association between the residential background and frequency of internet usage.

Ho₂: There is no association between the residential background and internet training.

Ho₃: There is no association between the residential background and internet skills.

Ho₄: There is no ideassociation between the rsntial background and purpose of internet usage.

Variable	Frequency	Percent
Gender		
Male	65	65.00%
Female	35	35.00%
Residential Background		
Rural	50	50.00%
Urban	50	50.00%
Academic Status		
Undergraduate	47	47.00%
Postgraduate	53	53.00%
Total Students	100	100.00%

Table 1 : Demographic profile of students

As per Table 5.1 the total number of respondents taken as a sample among the students of

University of Lucknow was 100 out of which 65 (65%) are males and 35 (35%) are females. There

is a greater number of males than females. The residential background of the respondents consists of 50 (50%) students which belong to rural areas and 50 (50%) students belong to urban areas. Equal number of rural and urban students were selected as a part of purposive sampling. The academic status consists of 47 (47%) undergraduate students and 53 (53%)postgraduate The students. number of postgraduate students is more than undergraduates.





Frequency of Internet Usage

Frequency of Internet Usage	Rural		Urt	oan	Total Students		
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	
Less than 1 hour	6	12.00%	1	2.00%	7	7.00%	
1-3 hours	17	34.00%	9	18.00%	26	26.00%	
3-6 hours	17	34.00%	15	30.00%	32	32.00%	
More than 6 hours	10	20.00%	25	50.00%	35	35.00%	
Grand Total	50	100.00%	50	100.00%	100	100.00%	
I	x ² = 7.81472	(df = 3	p-value = 0.005621			
Critical value of $x^2 = 12.586538$ at 0.05 level of significance							

Table 2 : Frequency of internet usage

Table 5.2 reflects the frequency distribution of Internet usage of students with residential background. It can be seen that among 50 students with rural background, 17 (34%) use the internet for 3-6 hours and 1-3 hours each. While among 50 students with urban background, 25 (50%) use the internet for more than 6 hours. To check if this disparity is significant or not, chisquare test has been used.

Entries made in the table states the computed value of $x^2 = 12.586538$ is quite higher than 7.81472, on the significance level of 0.05. Consequently, the formulated null hypothesis, Ho₁ can be rejected. Since a P value of 0.005621 is less than the conventionally accepted significance level of 0.05 (i.e., P < 0.05) we can reject the null hypothesis and conclude that the internet usage and residential background of the students are related significantly. In other words, there exists a digital divide in internet usage among the students.



Figure 2

Internet Training

Mode of Internet Training	Rural		Urł	oan	Total Students		
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	
Formal Training	30	60.00%	41	82.00%	71	71.00%	
No Training	20	40.00%	9	18.00%	29	29.00%	
Total Students	50	100.00%	50	100.00%	100	100.00%	
x ² = 5.876639 df		b = 1 p-value = 0.015343		0.015343			
Critical value of $x^2 = 3.841459$ at 0.05 level of significance							

 Table 3 : Internet training

Table 5.3 represents Internet training received by students with their residential background. By observation, it can also be seen that among 100

students, 71 (71%) have received formal training. 41 (82%) students with urban background received formal training while only 30 (60%) students with rural background had received it.

The table also depicts computed value of $x^2 = 5.876639$ is quite higher than 3.841459, on the significance level of 0.05. Consequently, the formulated null hypothesis, Ho₂ can be rejected. Since a P value of 0.015343 is less than the conventionally accepted significance level of 0.05 (i.e., P < 0.05) we can reject the null hypothesis and conclude that there is an association between internet training and the residential background of the students.



Figure 3

Internet Skills

	Rural		τ	J rban	Total Students			
Internet Skills	Frequer cy	Percenta ge	Frequer cy	Percentage	Frequer cy	Percentage		
Using e-mail	36	72.00%	42	84.00%	78	78.00%		
Downloading music/videos	28	56.00%	42	84.00%	70	70.00%		
Uploading/downloading from cloud storage	20	40.00%	38	76.00%	58	58.00%		
Searching information database	30	60.00%	34	68.00%	64	64.00%		
Creating a blog	7	14.00%	11	22.00%	18	18.00%		
Coding using languages	6	12.00%	17	34.00%	23	23.00%		
Note: Students were allowed to choose multiple options.								
x ² = 4.967421	df = 5 p-value = 0.419869064							
Critical value of $x^2 = 11.0704$ at 0.05 level of significance								

Table 4 : Internet skills

Table 5.4 shows that among 50 rural students, 36 (72%) students can use e-mail followed by 30 (60%) who can search information database. Among 50 urban students, 42 (84%) can use

email and 42 (84%) can download music/videos followed by 38 (76%) can upload. Nevertheless, it is examined that there are more responses received by urban students than rural students, in

other words, students with urban background have more internet skills compared to students with rural background.

The computed value of $x^2 = 4.967421$ is quite lower than 11.0704, on the level of significance of 0.05. Consequently, the formulated null hypothesis, Ho₃ cannot be rejected. Since a P value of 0.419869064 is more than the conventionally accepted significance level of 0.05 (i.e., P < 0.05) we fail to reject the null hypothesis and conclude that there is no association between internet skills and residential background of the students.



Figure 4

Purpose of Internet Usage

Purpose of	Rural		Ur	ban	Total Students			
Internet Usage	Frequency	Percentage	Frequency Percentage		Frequency	Percentage		
Entertainment	20	40.00%	28	56.00%	48	48.00%		
Communication	21	42.00%	24	48.00%	45	45.00%		
Socializing	16	32.00%	25	50.00%	41	41.00%		
Information Need	24	48.00%	31	62.00%	55	55.00%		
Academics	27	54.00%	28	56.00%	55	55.00%		
Note: Students were allowed to choose multiple options.								
$x^2 = 1.22099796$ df = 4 p-value = 0.874629489								
Critical value of $x^2 = 9.4877$ at 0.05 level of significance								

Table 5 : Purpose of internet usage

As per Table 5.5, among 50 rural students, 27 (56%) students use the internet for academics followed by 24 (48.00%) who use the internet for information need. While among 50 urban students, 31 (62.00%) students use the internet for information need followed by 28 (56.00%) who use it for entertainment and academics each. However, it is observed that the primary purpose of internet usage of rural and urban students differs.

It is evident that computed value of x^2 = 1.22099796 is quite lower than 9.4877, on the level of significance of 0.05. Therefore, the formulated null hypothesis, Ho₄ cannot be rejected. Since a P value of 0.874629489 is more than the conventionally accepted significance level of 0.05 (i.e., P < 0.05) the null hypothesis is accepted it is concluded that the purpose of internet usage and the residential background of the students are not related.





FINDINGS

- (i) Among 50 students with rural background, 17 (34%) use the internet for 3-6 hours and 1-3 hours each. While among 50 students with urban background, 25 (50%) use the internet for more than 6 hours.
- (ii) There is an association between Internet usage and residential background of the students.
- (iii) Among 50 students with urban background,
 41 (82%) received formal training while
 only 30 (60%) students with rural
 background had received it.
- (iv) There is an association between internet training and the residential background of the students.
- (v) Students with urban background have more internet skills compared to students with rural background.
- (vi) It is found that the Internet skills and residential background of the students are not related.
- (vii) The primary purpose of internet usage of rural and urban students differs, 27 (56%) rural students use the internet for academics

while 31 (62.00%) urban students use the internet for their information need.

(viii) The purpose of internet usage and the residential background of the students are not related.

Suggestions

To bridge the gap of digital divide among students, well-coordinated efforts are required from various levels of society that influence the academic life of a student; this includes, the government, educational institutions, libraries and teachers.

Government : Rural areas lack the basic ICT infrastructure that is necessary to have an internet connection. Government can play a major role in bridging the gap by negotiating the prices to provide internet services at much cheaper prices to the areas that lack the facilities as well as to the education institutions to promote the use of internet. New policies at national level should be adopted that mandate the inclusion of Digital Literacy in curriculum to enhance the overall computer skills of the students.

Educational Institutions: Schools, colleges, universities and other institutions should use ICT infrastructure to maximize the benefits received from it. Classrooms should be upgraded to "Smart Classrooms" which uses digital tools with a variety of innovative and interactive learning methods. This way Internet can become a seamless part of the learning process.

Libraries: Libraries for centuries carry the responsibility of effectively providing information from all the sources they can muster, thus decreasing the information gap in the society. For this, Librarians should equip

themselves with modern information retrieval methods and online databases to fulfil the information needs of the user. Libraries can also provide the space for students to access online information using computers, and should be taught on how to make the best use of the resources provided.

Teachers: Students should be taught how to make the best use of the Internet for academic reasons by the Teachers. Use of Internet for assignments and project work should be encouraged at school level, and for research purposes in higher education. A training programme for students as well as the teachers can improve their competency in using the Internet.

Additionally, parents play the most vital role in the growth and development of the student. They should made aware of the importance of having Internet as a part of the education of their children.

CONCLUSION

Digital divide refers to the gap between those who have access to ICT and those who don't. There are three different levels of digital divide, namely in terms of access, usage and the benefits derived from it. This study focuses on the second level viz. the usage of internet. It confirms the presence of digital divide in terms of internet usage among students in of University of Lucknow. There is an urgent need for a plan of action for the development of ICT initiatives in higher education to address this emerging challenge. Moving in the same direction, efforts are made by the University of Lucknow in bridging the digital divide, as it established its Cyber Library, empowering students with computers with internet facility making it a hub for students and teachers to pursue their research and academic needs.

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