

Digital Divide among Undergraduate Students: A Survey of District Srinagar and Kupwara in J&K State

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Abstract -The Digital Divide, also called the Digital Split, is a socio-economic issue referring to the differing amount of information between those who have access to the information through various means and those who do not have access. The term became popular among various stake holders from various disciplines such as scholars, policy makers, and social activists across the globe in the late 1990s. The present study tries to understand the digital divide among the undergraduate students of Kashmir division of J&K state of India. The scope of study is limited to two Districts viz. District Kupwara and Srinagar. The study tries to find out various factors beyond the digital divide among the students studying in rural and urban areas, and provide ample solution to minimize the same. The research was conducted using survey method, for data collection, questionnaire method of data was applied. The research revealed that male students are way ahead in making use of digital media as compared to female and the students from urban background make more use of digital content as compared to rural students. The major reasons for disparity in the use of digital media (internet) is lack of infrastructure viz. broadband, wireless internet, awareness and lack of training institutions for rendering training in rural areas s compared to urban areas.

Keywords: Digital Divide, Internet Use, College Students, ICT, Wireless Communication, Access to Information

I. INTRODUCTION

The term ‘digital divide’ refers to the gap between the people with effective access to information technology and those with very limited or no access to it at all. It includes the imbalance in both the physical access to technology and the resources and skills needed to effectively participate as a digital citizen (Wikipedia 2010). This unequal access to the digital information creates a divide between the people and that division is called ‘Digital Divide’. This has become a popular phrase to describe the perceived disadvantages of those who are either unable, or do not choose, to use the appropriate information communication technology (ICT) in their day-to-day activities, decision making, learning and pleasure (Cullen 2001). In simple terms, the digital divide means unequal access to the information technology like computers and the Internet among the different sections of society. The various studies conducted worldwide on the Internet usage confirm the existence of a digital divide all over the world. According to Internet World Stats Report (2018) there were 4208571287 internet users as on June 2018 which was 55.1% of total world population (7634758428).

TABLE I REGION WISE INTERNET USERS IN THE WORLD AND THEIR PENETRATION RATE

Region	Population (2018)	Population of world (%)	Internet users (June 2018)	Penetration Rate (%)	Internet users(%)
Africa	1287914329	16.9	464923169	36.1	11.0
Asia	4207588157	55.1	2062197366	49.0	49
Europe	827650849	10.8	705064923	85.2	16.8
Latin America/ Caribbean	652047996	8.5	438248446	67.2	10.4
Middle East	254438981	3.3	164037259	64.5	3.9
North America	363844662	4.8	345660847	95.0	8.2
Oceania /Australia	41273454	0.6	28439277	68.9	0.7
World Total	7634758428	100	4208571287	55.1%	100

Thus as per this study there is wide digital divide among different sections of people globally when it comes to internet usage, so is case with our state.

II. HISTORY OF INTERNET IN KASHMIR

Internet services were introduced in the Kashmir Valley

during 1994–95 by Bharat Sanchar Nigam Limited (BSNL) (Chawla 2003). Presently five service providers are providing internet services in the valley viz. BSNL, Bharti Airtel, Vodafone, Idea cellular, and Reliance Jio. Besides this commercial cyber cafes are also providing internet services in Kashmir valley.

A. Scenario of Internet Facilities in Colleges of Kashmir Valley

In Kashmir valley colleges’ the Internet service is not available to the whole academic community. Most of the higher institutions, like the University of Kashmir, started to provide these facilities to the academic community only in the last decade. The University of Kashmir has played a pivotal role in initiating the process. It established Internet access centers in central library premises separately for students, scholars and teachers in 2002, and on 4December 2008 opened two more browsing centers known as ‘E-resource Centre’ and ‘24 x 7’. Now more than 200

computers are available in the central library for use by the academic community for browsing online. Besides the Internet facilities in the central library of the university, there is Internet access centers in almost all the departments and the Wi-Fi system covers the whole campus. Following the steps of the universities, some of the degree colleges also established browsing centers for their academic communities to enhance their academic performance. Among all the colleges, the Islamia College of Science and Commerce is the only one having browsing centers in all the faculties, including the college library. In this college almost 200 computers are connected to the Internet through broadband and VSAT technology.

TABLE II PROVIDES AN INSIGHT INTO SCENARIO OF INTERNET FACILITIES IN DIFFERENT COLLEGES OF KASHMIR

Name of the college	Availability of Internet	Mode of connection	Location	Users community	District (urban/Rural)
Amar Singh College, Srinagar	Yes	Broadband	Library	All	Urban
S.P College, Srinagar	Yes	Broadband/VSAT	Office	Officials	Urban
Women College, M.A Road, Srinagar	Yes	Broadband	Computer Science Department	All	Urban
Govt. College of Education, M.A Road, Srinagar	Yes	Broad band /VSAT		All	Urban
Govt. Degree college Bemina, Srinagar	Yes	Broadband	Library	All	Urban
Govt. College for Women, Nowakadal, Srinagar	Yes	Broadband	Library	All	Urban
Islamia College of Science & Commerce, Srinagar	Yes	Broadband	Library	All	Urban
Gandhi Memorial College, Srinagar	Yes	Broadband	Office	All	Urban
VishuBharti Women’s College, Srinagar	Yes	Broadband	Office	All	Urban
Govt. Degree College, Handwara	Yes	Broadband	Library	All	Rural
Govt. Degree College, Kupwara	Yes	Broadband	Office	All	Rural
Govt. Degree College for Women , Kupwara	Yes	VSAT	Library	All	Rural
Govt. Degree College, SogamKupwara	Yes	VSAT	Library	Officials	Rural
Govt. Degree College, Tangdar	Yes	VSAT	Library	Officials	Rural

III. LITERATURE REVIEW

Kineston and Kumar (2003) identified the economic, educational, linguistic, cultural and regional factors responsible for the digital divide. Gardner and Oswald (2001) reported that the digital divide is visible on the basis of financial conditions, educational qualifications, sex, age and region. Dickerson and Gentry (1983) observed that demographic traits such as education, age and income are significantly associated with the usage rates of technological innovations. Blaiso (2008) and Crosby and Johnson (2002) found that a digital divide existed on the basis of regions. Gebre Michael and Jackson (2006) also observed a wide gap in Internet access between the rural and urban people of Sub-Saharan Africa. Bimber (2000) and Mishra, Yadav and Bisht (2005) identified the digital divide between genders and showed that males are associated with technology more than females do and there lies a significant digital divide across the genders.

IV. SCOPE OF STUDY

The scope of present study is restricted to two district of

Kashmir division of J&K state. The target population represents the digital divide among the rural and urban students studying at undergraduate level in these two districts of the valley. The total no of colleges in these two selected districts is 14 out of which 9 are located in urban areas and 5 in rural areas.

V. OBJECTIVES OF THE STUDY

The main objective of the study is to identify the extent of the digital divide among the college students of Kashmir Valley in selected districts; however the following secondary objectives were set to conduct the study:

1. To assess the digital divide among rural and urban undergraduate students.
2. To ascertain the digital divide across the genders in undergraduate students.
3. To find out the reasons behind the digital divide among undergraduate students.
4. To suggest the possible solutions to bridge the digital divide among students studying at undergraduate level.

VI. METHODOLOGY

The present study is a survey based study as such descriptive survey method was adopted. A self-structured questionnaire was used for data collection. The questionnaire was framed after due consultation with experts. The target population for present study is 57596, comprising of 30226 female students and 27370 male students. Descriptive statistic techniques like tables of frequency counts and percentages were used in the analysis. Appropriate statistical softwares like SPSS and MS-Excel were used for data analysis and interpretation. ANOVA and Chi Square tests were used for statistical testing of the results.

A. Sample Size

There are many statistical techniques available for calculating the sample size from a particular target population; with advancements in technology many online sample calculators are also available for the purpose. For present study Sample size was determined by using Krejcie and Morgan (1970) formula which is considered one of the best for survey type researches. The formula for calculating the sample size is:

$$S = \frac{X^2 NP (1-P)}{d^2 (N-1)} + \frac{X^2 P (1-P)}{d^2}$$

S= required sample size

X² = the table value of chi square for 1 degree of freedom at the desired confidence level (1.96x1.96= 3.841)

N= population size

P= The population proportion (assumed to be 0.5 since this would provide the maximum sample size)

d= degree of accuracy expressed as proportion, (0.05)

The population of the students and faculty under study was 14746. Further, to ensure an optimal sample size, the 95% confidence level was pre-assigned and a small sampling error (0.05) was fixed. Let the population distribution be 50%, and then applying the above formula:

$$S = \frac{3.841 \times 57596 \times 0.5 (1-0.5)}{0.0025 (57596-1)} + \frac{3.841 \times 0.5 (1-0.5)}{0.0025}$$

S= 392

Thus, the Sample size for the present study is 392.

B. Administration of the Tool

As the study is based on 14 different colleges, the sample was divided into 14 equal strata as such 28 questionnaires were distributed in each college. Stratified sampling method was used for administration of the tool where the sample was stratified on the basis of distribution of colleges and in each college. The questionnaires were administered by the researchers themselves and personal assistance was provided in filling up the questionnaires wherever necessary. Finally the filled up questionnaires were collected back with an overall significantly high response rate of 93.11%.

TABLE III TOTAL POPULATION AND SAMPLE SIZE OF THE STUDY

District	Total Population	No. of Questionnaires Distributed	No. of Questionnaires Collected Back	Response Rate
District Srinagar	39372	252	237	94.04
District Kupwara	18224	140	128	91.42
Total	57596	392	365	93.11

TABLE IV GENDER WISE DISTRIBUTION OF THE QUESTIONNAIRES

District	Total Population		No. of Questionnaires Distributed		No. of Questionnaires Collected Back		Response Rate (%)	
	M	F	M	F	M	F	M	F
District Srinagar	16127	18489	120	132	111	126	92.50	95.45
District Kupwara	11243	11737	75	65	67	61	89.33	93.84
Total	27370	30226	195	197	178	187	91.28	94.92

M=Male, F=Female

VII. DATA ANALYSIS AND INTERPRETATION

The data collected by means of questionnaires was tabulated and interpreted using appropriate statistical techniques:

A. Awareness about Digital Information Resources among the Students

Chi square test was applied to the likertscale for test the

hypothesis. Two groups were taken for the test, excluding the 'Neutral' option. It was found that the calculated value 4.13 is significantly greater than the table value 3.84 at 5% significance level with degree of freedom 1. Hence we conclude from the statistical results that the user population is widely distributed in their opinion about the use of Digital Information Resources.

TABLE V AWARENESS ABOUT DIGITAL INFORMATION RESOURCES AMONG THE STUDENTS

District	User Response					N
	Fully Aware	Partially Aware	Neutral	Partially Unaware	Fully Unaware	
District Srinagar						
Male	27	24	09	33	18	111
Female	19	35	12	21	39	126
District Kupwara						
Male	16	10	11	17	13	67
Female	08	12	06	21	14	61
<p>Chi Square Test Chi-square=4.13 d. f. = 1 Table Value ($\chi^2\alpha$) = 3.84</p>						

B. Frequency of Use of Digital Information Resources for By the Students

TABLE VI FREQUENCY OF USE OF DIGITAL INFORMATION RESOURCES FOR ACADEMIC PURPOSE

District	User Response					N
	VeryFrequently	Frequently	Often	Rarely	VeryRarely	
District Srinagar						
Male	29	16	12	24	30	111
Female	18	23	17	37	31	126
District Kupwara						
Male	09	12	15	18	13	67
Female	14	07	08	24	08	61
<p>Chi Square Test Chi-square=4.06 d. f. = 1 Table Value ($\chi^2\alpha$) = 3.84</p>						

Chi square test was applied to the likertscale for test the hypothesis. Two groups were taken for the test, excluding the ‘Neutral’ option. It was found that the calculated value 4.06 is significantly greater than the table value 3.84 at 5% significance level with degree of freedom 1. Hence we conclude from the statistical results that the user population

is widely distributed in their use of Digital Information Resources.

C. Reasons for Not Using Digital Information Resources by the Students

TABLE VII REASONS FOR NOT USING DIGITAL INFORMATION RESOURCES BY THE STUDENTS

District	User Response					N
	Poor Infrastructure	Lack of Cooperation from the Institution	Lack of Time	Lack of IT Skills	Lack of Knowledge about DIRs	
District Srinagar						
Male	23	24	08	27	29	111
Female	18	26	11	21	50	126
District Kupwara						
Male	12	14	04	19	18	67
Female	07	19	16	17	22	61

D. ANOVA Test: ANOVA test was used to statistically test the results of the table. The results of the ANOVA suggest to reject the null hypothesis as the calculated value of F is

larger than the critical value, which indicate that there is a significant difference in students of various faculties for not using the DIRs.

TABLE VIII ANOVA TEST

Source of Variation	SS	df	MS	F	P-value	F crit.
Columns	257.79	3.00	85.93	4.48	0.02	3.29
Error	287.46	15.00	19.16		$\alpha = 0.05$	
Total	664.63	23.00				

VIII. SUGGESTIONS

The present study brought into focus that there is a significant digital divide among college students studying in different colleges of selected districts of Kashmir valley. In order to bridge this gap of digital divide among the students, following suggestions can be considered:

1. Lack of access to technology is one of biggest obstacle faced by students as well as faculty members. The need of the hour is to provide internet facility to all students.
2. High speed internet facility must be provided to all the students, so that they can make best use of it, and can enrich themselves while the latest sources and services of information.
3. Ignorance and lack of Awareness among students, is another factor, for the existence of digital divide among these students. So in order to bridge this gap, orientation programs, like workshops, conferences should be organized by the respective colleges, to highlight the importance of use of internet, and its impact on students' performance.
4. Students should be educated and trained on how to make best use of technology, as mere access to it is a futile exercise, unless students are taught how to use it. Therefore, college authorities should organize training programmers for students as well as faculty members, and teach them basic soft skills to use technology, so that they become smart learners.
5. The students from rural background are usually poor and they don't have means to use commercial cyber café, hence Govt. should take initiatives, by establishing more community information centers in towns and information kiosks in villages, or by providing wireless internet in remote villages to overcome this problem.

IX. CONCLUSION

In present day scenario, where all aspects of our life are driven more by information rather than anything else, the existence of the digital divide is a great obstacle in the progress and development of any community at any level. All the stake holders should come at a common platform with a serious approach pressing government bodies and other funding agencies at all levels to overcome the existing barriers in access to information for all and create ways and means to bridge the digital divide. The governments should come up with policies and projects to establish sound information technology frameworks and implement them on a timely basis. The state of Jammu and Kashmir being remotely located and politically unstable needs special emphasis with respect to access to information for all, so that the people of the state could understand and realize the progressive nature of access to information.

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