

THE DIFFERENTIAL USE OF INFORMATION SOURCES AND SERVICES: AN EMPIRICAL STUDY OF SELECTED UNIVERSITIES IN UTTAR PRADESH

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Abstract *The current study provides an overview of the various information sources, including the total number of books, the number of references, national and international journals, and electronic journals. The Chi-square test is used to examine the hypothesis as well as the consistency of the findings concerning the information sources and services offered at the various universities that were chosen in the state of Uttar Pradesh. It has been discovered that the information sources that are used in various universities are significantly different from one another, and that the critical value is lower than the test statistics, which is not consistent. This demonstrates that various educational establishments, including universities, make use of a diverse range of information sources. It is clear to see that the various libraries, each operating at its own level, make use of the various information sources and services available to them. In proportion to their storage space, they maintain a large quantity of information along with the ICT Tools and services. It is necessary to modernise the library's sources and information services in order to ensure that they provide uninterrupted service and develop into an invaluable educational resource for researchers, educators, and students studying a wide range of subjects.*

Keywords: *Information Sources, Services, International Journals, ICT Tools*

INTRODUCTION

In India, there has been an increase in the demand for higher education over the course of the past ten years, particularly in the fields of the fundamental social sciences (geography, economics, political science, psychology, and sociology). This is due, in part, to the fundamental characteristics of the Indian economy, which are that it is highly dependent on imports, consumer-oriented, and thrives on distributive trade. One of the primary reasons for this is that India is a large consumer of goods. To summarise, it is a nation that places a significant emphasis on the provision of services to the people who live within its borders. As a direct consequence of this, there is a significant demand in the Indian economy for college graduates who are knowledgeable in the core disciplines of the social sciences. Universities have been given the responsibility of producing highly skilled individuals who are capable of producing goods and services with added value for the benefit of national development. This responsibility has been placed on universities as a burden. In addition to this statutory responsibility, they are required to teach, participate in research, and provide community service in some capacity. At any given university, the information sources and services accessible to social scientists are essential to the success of

their various professional endeavours, including teaching, research, and community service. It is absolutely necessary for the work that social scientists do in the areas of teaching, research, and community service for them to have the ability to make information accessible, use it, and make it available to others. When determining overall productivity, one of the most important factors to take into account is the amount of research that was completed. Works that have been published are a significant factor not only in determining local recognition and respect but also in determining international recognition and respect. It has come to light that some exceptionally productive academics working in the fields of social sciences have access to a greater quantity of information than their peers working in the same fields at the same time. One way to think of information is as a message that, once received, modifies the recipient's existing knowledge base. This indicates that the information significantly contributes to expanding the user's existing body of knowledge and is therefore valuable. It is necessary for the libraries, archives, record offices, documentation centres, and data centres that make up an institution's information system to be able to provide support for research activities utilising the information resources and services that they make available. This is the case because such support is required in order for

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the information system to function properly. As their primary means of gathering data, the social scientists who worked in the universities located in the Indian state of Haryana referred to contemporary journals, standard textbooks, and scholarly reference books. Because of the shift from printed to digital information, all members of an academic institution, including students and faculty, are now expected to conduct research that is of higher quality, more efficient, and more fruitful than it has ever been before. The importance of CD-ROMs to social scientists had increased to the point where they surpassed their value to scientists and academic humanists. This is a possibility due to the vast amounts of information on a wide range of social science subjects that are contained on CD-ROM databases. According to Line (2000), researchers in the social sciences frequently consult either experts, abstracts, or indexes, and they also engage in conversations regarding relevant topics with their peers. Meho and Tibbo (2003) conducted a study on the information-seeking behaviour of social scientists working in stateless nations. They found that these researchers relied heavily on personal collections, data gathered from field work, and grey literature as major information sources. On the subject of social science information sources and systems, very little recent research has been conducted in Africa or anywhere else, and even less has been done to replicate older studies. Previous research on the information seeking behaviour of social scientists did not find a correlation between that behaviour and their research output. The contribution of information sources and services to the research output in Indian universities is elaborated in the present article.

LITERATURE REVIEW

Studies on information sources and ICT have been collected through a wide variety of online sources, including journals of national and international repute, reports from the government, theses, books, and so on. Aya (2000) investigates the use of the Internet by social scientists and academics in Abuja, Nigeria, and reports that used the Internet to get information. Alasa and Kalechukwu (1999) point out that the Internet gives access to archives, expertise, and convenient and updated information. Bright (1999) reports that social scientists in Mexico used abstracts and indexes, citations in books and journals, colleagues, tables of contents, book reviews, and browsed library collections for their information needs. White (1973) submits that the most frequently used source of information by social scientists is journals. Kwafo-Akoto (1995) makes the case for establishing a social science data archive in Botswana, to give access to primary data for secondary analysis and teaching. Hobohm (1999) states that data used by social scientists does not always come from social science research, but is mainly from other resources not indexed in social sciences information systems. Social scientists obtain data from the national statistical information system, feasibility reports, and government documents. The

inability of university libraries to meet their information requirements may have forced them to use personal collections when conducting research. Rosenberg (1997) corroborates this view in describing the marginalisation of university library in Africa, the growth of departmental libraries, and the adoption of alternative ways of obtaining information.

According to research done by Husain and Nazim (2015), Indian academic libraries are accessing information through the use of ICT that is based on traditional methods. According to the findings of the study, some of the modern ICT tools include blogs, web discovery tools, real simple syndication feeds, wikis, and so on. A further number of obstacles have been placed in the way of the application of information and communications technology in academic libraries. These obstacles include a low level of information and communications technology expertise among library users, a lack of trained staff, inappropriate information and communications technology infrastructure, and so on. According to the findings of Allen and Tailor's (2017) research, there is a requirement for the development of new technology as well as mobile technologies in order to access the information necessary to become proficient without any kind of physical presence. Naik (2020) conducted research into the library resources and services offered by the university libraries of Bangalore University. The findings of the study indicated that students majoring in science were pleased with the library resources and services made available by the university library. In addition to this, the students had conflicting opinions regarding the most recent edition books and the reference collection that was housed in the library. Adeyemi, Esan and Aleem (2021) conducted a study on academic libraries in Nigeria to investigate the perception, readiness, and awareness of academic librarians regarding the application of gamification in library services. The purpose of the study was to investigate the perception, readiness, and awareness of academic librarians. According to the findings of their research, the vast majority of librarians were unaware of the use of gamification in library services, and only a small number of academic librarians were familiar with this strategy in library services. In order to investigate the growth of digital library resources, Kata and her colleagues (2021) carried out a study regarding the university libraries of Tanzania. According to the findings of the study, library patrons play the most significant role in the overall improvement of the digital library system. Additionally, it was discovered that the university library ought to implement a variety of digital tools and models in order to improve the user friendliness of the digital library system.

RESEARCH METHODOLOGY

Sample and Variable selections

At the initial phase study has been organised the questionnaire and its responses to analyse the results received

from the different universities and colleges. The data were collected through questionnaire method by distributing 50 questionnaires each to the twelve Universities in Uttar Pradesh District under the study. Among the Universities, the maximum of 48 questionnaires were received (98%) from Dev Sanskriti Vishwavidhyalya. In line with this, 58 percent of the responses were received from two institutions i.e. College of Engineering Roorki and Shree Guru Ram Rai University. Ahead, 76 percent responses received from IMS Dehradun, 72 percent from University of Petroleum & Energy Studies, 60 percent from Himgiri Zee University and Motherhood University, 76 percent from University of

Patanjali, 66 percent from Graphic Era Hill University, 74 percent from DIT University, 68 percent from Bhagwant Global University, 56 percent from Quantum University. It can be seen from the table 1 that a total of 600 questionnaire has been distributed and 410 valid responses have been received from all the universities in UP. As this amount of sample is enough to conduct the study for further analysis. According to the William G. Cochran and Bartlett table based on the 5% significance level the sample size is justifiable. After removal of the invalid responses the final sample is left with the 68 percent of the responses. Some of the respondents have not replied too. Hence the final sample is 410 respondents.

Table 1: Total Valid Responses from the Selected Universities

Sr. No.	Name of University	Total Questionnaires Distributed	Total Responses Received	Response Rate (%)
1	College of Engineering Roorki	50	29	58.00%
2	Shree Guru Ram Rai University	50	29	58.00%
3	IMS Dehradun	50	38	76.00%
4	Dev Sanskriti Vishwavidhyalya	50	48	96.00%
5	University of Petroleum & Energy Studies	50	36	72.00%
6	Himgiri Zee University	50	30	60.00%
7	University of Patanjali	50	38	76.00%
8	Motherhood University	50	30	60.00%
9	Graphic Era Hill University	50	33	66.00%
10	DIT University	50	37	74.00%
11	Bhagwant Global University	50	34	68.00%
12	Quantum University	50	28	56.00%
	Average	50	34.17	68.33%

Source: Selected Universities.

It is further observed from the Table 1 that overall 410 (68%) valid responses have been received from the selected universities out of the 600 questionnaires disseminated in UP. Quantum university has a very less response rate which is 56 percent, college of engineering Roorki and Shree Guru Ram Rai University has 58 percent response rate. On the other hand Dev Sanskriti Viswvidhyalya has maximum response rate is 96 percent. The year of establishments of the selected institution has been considered as College of Engineering

Roorkee (1990), Shree Guru Ram Rai University (1996) and IMS Dehradun (1997) are the oldest institution out of the sample size. These institution have further, university-wise bifurcation of the responses has been mentioned in the Table 2. It is observed that, a total of 36 faculty members have been responded to the questionnaire, 194 responses received from the UG students, 122 from the PG students and 58 responses from the Research Scholars.

Table 2: Bifurcation of the Valid Response taken from the Faculty Members, Research Scholars and Students of the Selected Universities and Colleges

Sr. No.	Name of University	Year of Establishment	Faculty	UG Students	PG Students	Research Scholar	Total Valid Responses
1	College of Engineering Roorkee	1990	3	10	10	6	29
2	Shree Guru Ram Rai University	1996	3	12	9	5	29
3	IMS Dehradun	1997	2	17	12	7	38
4	Dev Sanskriti Vishwavidhyalya	2002	4	23	13	8	48
5	University of Petroleum & Energy Studies	2003	3	18	9	6	36
6	Himgiri Zee University	2006	3	12	10	5	30
7	University of Patanjali	2006	3	21	10	4	38
8	Motherhood University	2007	2	14	9	5	30
9	Graphic Era Hill University	2011	3	15	11	4	33
10	DIT University	2013	3	21	10	3	37
11	Bhagwant Global University	2016	3	18	11	2	34
12	Quantum University	2017	4	13	8	3	28
	Total		36	194	122	58	410
	Average		3	16.17	10.17	4.83	34.17
	Min		2	10	8	2	28
	Max		4	23	13	8	48
	SD		0.58	3.98	1.34	1.67	5.47

Source: Selected Universities.

In term of the average responses, average 3 responses received from the faculty members of the each institution, 16.17 responses from UG students, 10.17 from PG students and 4.83 responses from research scholars from each institution and university. Maximum responses received from Dev Sanskriti Vishwavidhyalya, a maximum of 4 responses received from the faculty members, 23 from UG

students, 13 from PG students, 8 from Research scholars. The overall SD is 5.47 which show the variation in data. It can be demonstrated that if the variation in data is much more then the data is less reliable and when the data has lesser value of SD, it means the data has less variations and that dataset is easily predictable.

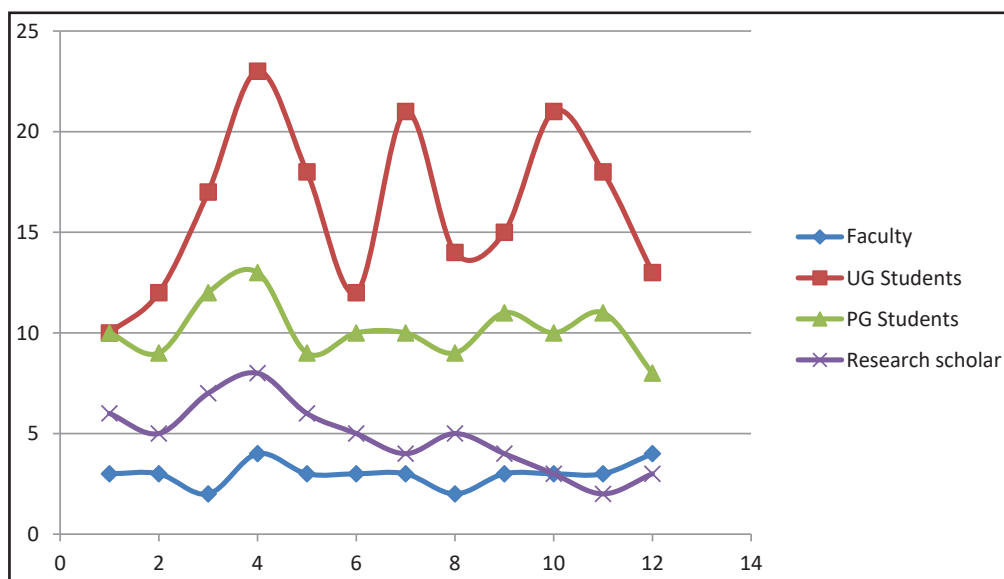


Fig. 1 Bifurcation of the Valid Responses Taken from the Faculty Members, Research Scholars, UG and PG Students of the Selected Universities and Colleges in UP

Technique Used

In the present study chi-squared test has been used to check the impact of the information sources. It is also written as the χ^2 angel moment, is the chi-squared moment of a statistic, which is valid to perform when the test statistic is distributed under the square of the zero hypothesis. Pearson's chi-square test is used to determine whether the probability of a random test is there is a significant difference between the expected frequencies and the observed frequencies in one or more categories, or No.

In the standard applications of this test, comments are classified into mutually exclusive classes. If the null hypothesis (that there is no difference between classes in the population) is true, then the observations calculated from the angle moment data follows χ^2 frequency distribution. The purpose of test statistic is to evaluate the fact that the absolute imaginary has not been accepted as true. Chi-square test moments often refer to those angel moments for which the distribution of the test statistic approaches the χ^2 distribution, which means that the sample distribution of the test statistic (if the null hypothesis is assumed True) does not approximate a χ^2 distribution more and more closely as sample size increases.

Below is the formula to calculate the Chi-square test:

$$\chi^2 = \sum \frac{\text{Observed frequency} - \text{Expected frequency}}{\text{Expected frequency}}$$

$$\chi^2 = \sum \frac{O-E}{E}$$

Hypothesis Formulation:

The hypothesis of present study has been developed based on the extensive literature and objectives as shown below:

H0: There is no significant difference of information sources and services used in various universities.

H1: There is significant difference of information sources and services used in various universities.

RESULTS AND DISCUSSION

The present section of the study demonstrate the information sources like total books, No. of references, national and

international journals, e-journals. These are bifurcated as per the university. Himgiri Zee University has 150 seating capacity, 22000 total books, 690 references, number of national journals are 12 and international are 8 whereas the e-journals are 35. In the motherhood university there 225, seating capacity, 52000 total books, 5200 references, number of national journals are 53 and international are 23 whereas the e-journals are 38. Quantum University keeps 175 seating capacity, 37000 total books, 2500 references, number of national journals are 24 and international are 11 whereas the e-journals are 31. University of Patanjali has 189 seating capacity, 12503 total books, 810 references, number of national journals are 33 and international are 14 whereas the e-journals are 6. In Graphic Era Hill University there are 270 seating capacity, 69000 total books, 4570 references, number of national journals are 39 and international are 21 whereas the e-journals are 33. IMS Dehradun has 180 seating capacity, 27000 total books, 1500 references, number of national journals are 75 and international are 25 whereas the e-journals are 2. In University of Petroleum & Energy Studies there are 503 seating capacity, 66000 total books, 5300 references, number of national journals are 129 and international are 24 whereas the e-journals are 16. Shree Guru Ram Rai University keeps 800 seating capacity, 90000 total books, 12000 references, number of national journals are 210 and international are 45 whereas the e-journals are 35. College of Engineering Roorkee maintains 260 seating capacity, 67000 total books, 3000 references, number of national journals are 150 and international are 12 whereas the e-journals are 70. In Dev Sanskriti Vishwavidhyalya there are 265 seating capacity, 43000 total books, 703 references, number of national journals are 18 and international are 7 whereas the e-journals are 26. Whereas DIT University there are 345 seating capacity, 64500 total books, 5123 references, number of national journals are 120 and international are 18 whereas the e-journals are 45. At last in Bhagwant Global University there are 103 seating capacity, 32000 total books, 915 references, number of national journals are 23 and international are 16 whereas the e-journals are 9. This data has been collected from the respective university by physical visit. The chi-square test has been applied on this observed data using expected frequency and test statistics tables in the present section.

Observed Frequency: Different Online Resources in the Respective Institutions

Name of University	Seating Capacity of Library	Total Books	No. of References	National Journals (Print Subscription)	International Journals (Print)	E-Journals	Total
Himgiri Zee University	150	22000	690	12	8	35	22895
Motherhood University	225	52000	5200	53	23	38	57539
Quantum University	175	37000	2500	24	11	31	39741
University of Patanjali	189	12503	810	33	14	6	13555
Graphic Era Hill University	270	69000	4570	39	21	33	73933
IMS Dehradun	180	27000	1500	75	25	2	28782
University of Petroleum & Energy Studies	503	66000	5300	129	24	16	71972
Shree Guru Ram Rai University	800	90000	12000	210	45	35	103090
College of Engineering Roorkee	260	67000	3000	150	12	70	70492
Dev Sanskriti Vishwavidhyalya	265	43000	703	18	7	36	44029
DIT University	345	64500	5123	120	18	45	70151
Bhagwant Global University	103	32000	915	23	16	9	33066
Total	3465	582003	42311	886	224	356	629245

Expected Frequency

Name of University	Seating Capacity of Library	Total Books	No. of References	National Journals (Print Subscription)	International Journals (Print)	E-journals	Total
Himgiri Zee University	126.0735882	21176.10579	1539.480401	32.2369983	8.150211762	12.95301512	22895
Motherhood University	316.8442101	53219.12867	3868.974134	81.0170188	20.48285803	32.55311365	57539
Quantum University	218.8377579	36757.35401	2672.220599	55.9567831	14.14708738	22.48376388	39741
University of Patanjali	74.64195186	12537.32754	911.4503969	19.0859363	4.825338302	7.66884123	13555
Graphic Era Hill University	407.1193971	68382.31182	4971.321446	104.100371	26.31882971	41.82814007	73933
IMS Dehradun	158.4909376	26621.12587	1935.327578	40.5261099	10.24587879	16.28362879	28782
University of Petroleum & Energy Studies	396.3209561	66568.53835	4839.462041	101.339211	25.62074867	40.71868986	71972
Shree Guru Ram Rai University	567.6753093	95350.28371	6931.864361	145.154495	36.69820181	58.32392788	103090
College of Engineering Roorkee	388.1711893	65199.65272	4739.945509	99.2553171	25.09389506	39.88136894	70492
Dev Sanskriti Vishwavidhyalya	242.4500552	40723.42265	2960.549578	61.9944441	15.67353892	24.9097315	44029
DIT University	386.293439	64884.25407	4717.016362	98.7751766	24.97250515	39.68844568	70151
Bhagwant Global University	182.0812084	30583.49482	2223.387593	46.5581387	11.7709064	18.70733339	33066
Total	3465	582003	42311	886	224	356	629245

Test Statistics

Name of University	Seating Capacity of Library	Total Books	No. of References	National Journals (Print Subscription)	International Journals (Print)	E-Journals	Total
Himgiri Zee University	4.541	32.055	468.741	12.704	0.003	37.526	555.569
Motherhood University	26.623	27.927	457.907	9.689	0.309	0.911	523.367
Quantum University	8.782	1.602	11.099	18.250	0.700	3.226	43.659
University of Patanjali	175.207	0.094	11.292	10.144	17.444	0.363	214.544
Graphic Era Hill University	46.182	5.579	32.398	40.711	1.075	1.863	127.809
IMS Dehradun	2.919	5.392	97.921	29.326	21.246	12.529	169.333
University of Petroleum & Energy Studies	28.715	4.856	43.826	7.550	0.103	15.006	100.055
Shree Guru Ram Rai University	95.080	300.214	3705.496	28.969	1.878	9.327	4140.965
College of Engineering Roorkee	42.321	49.713	638.702	25.943	6.832	22.746	786.257
Dev Sanskriti Vishwavidhyalya	2.097	127.268	1721.481	31.221	4.800	4.938	1891.805
DIT University	4.414	2.276	34.942	4.561	1.947	0.711	48.850
Bhagwant Global University	34.346	65.607	769.941	11.920	1.519	5.037	888.372
Total	471.228	622.584	7993.747	230.988	57.856	114.183	9490.585

Significance Level	5%
Degree of Freedom	55
Test Statistics	9490.585
p-value	0%
Critical Value	73.31149298
Check:	
p-value	0.00

Testing of the Hypothesis

H0: There is no significant difference of information sources and services used in various universities.

H1: There is significant difference of information sources and services used in various universities.

Here, p-value is below the significance level (5%) so the null hypothesis is rejected. It can be explained that there is significant difference of information sources and services used in various universities. Another proof of the test is that the critical value is below the test statistics, so the null hypothesis is rejected. It shows that different university and institutions are using different set of the information sources which seems true with the test statistics. Here, the H1 is considered because the null hypothesis is rejected. It can be observed that the different libraries are using the different information sources and services at their level. According to their capacity they keep the bunch of information and the ICT Tools.

CONCLUSION

In the beginning of this research project, descriptive statistics regarding the information sources and services were computed. These statistics will be used later on. These are split up in accordance with what the university requires. The Himgiri Zee University has a total of 22000 books, 690 references, 12 national journals, 8 international journals, and 35 electronic journals. The university has a capacity for 150 students to be seated there. The seating capacity at Motherhood University is 225, and there are a total of 52000 books and 5200 references. The number of national journals at Motherhood University is 53, and the number of international journals at Motherhood University is 23. However, there are 38 electronic journals. The capacity of Quantum University's classrooms is 175 people, and the library has a total of 37,000 books and 2500 references. There are 24 national journals and 11 international journals, but there are 31 electronic journals. Further consistency of information sources and services has been observed in various universities. It was not found consistent as different universities are using the different information sources and services.

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