

## Awareness and Satisfaction of users using Digital Information Resources and Services in the Libraries of IIT Kanpur and IIT Kharagpur.

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### Abstract

The technology revolution in the last four decades has made a tremendous impact on the way the information is processed, stored, retrieved and disseminated in the academic libraries. The rapid advancement in information technology, internet and World Wide Web (WWW) coupled with increased funding for research on creation, access and management of electronic information resources have led to the development of the new era of electronic and digital library. The present study provides an overview about the user's awareness, importance, purpose and satisfaction of using digital information resources and services amongst the students of P K Kelkar Library, IIT Kanpur and students of Central Library IIT Kharagpur. The study reveals that the majority of respondents visit the library. 65.2% of the respondents prefer to use print + digital resources to get the required information. The purpose of using digital information resources by the majority of respondents (77.4%) is to collect the study material, whereas 87.2% respondent's purpose of using digital information services is to get the study/research material. 54.3% respondents agree that more training programs should be organized for the effective utilization of resources and 78.6% respondents are satisfied / very satisfied with the available Digital Information Resources and services.

**Keywords:** Digital Library, Electronic Library, E-Resources, E-Services, Digital Information Resources, Digital Information Services, use of digital resources and services.

### 0 Introduction

The library is a place where books, manuscripts, musical scores, or other literary and artistic material is kept for use not for sale (Sharma and Vishwanathan, 2001). With the passage of time and advancement in technology the libraries have been changed from the mere storehouse of reading material to information centers. The literature in every sphere is growing at a fast pace and in the sciences and technology the growth is manifold. To cope up with ever increasing demand of the users the libraries have already adopted modern techniques using computers, internet and intranet.

The use of computers started in libraries since 1970 to automate repetitive and labour concentrated processes, i.e. acquisition, cataloguing and circulation (Ming, 1996). The major function of the library is to provide the right information to the right user at the right time in a right way to meet the information needs of their clientele. In the present era of information explosion and financial crunch it is practically not possible for any library to remain self-reliant and has to develop the means to overcome from traditional library system to a modern library system using computers and network to fulfil the information requirements of its users. The application of information technology in library and information field has made tremendous progress in the developed as well as in developing countries. The libraries have now evolved networks for the optimum utilization of their resources, facilities and services. The user in the present environment prefers to access print and digital information resources to satisfy his/her information requirements.

P K Kelkar Library, IIT Kanpur, was established in the year 1960 to support teaching and research activities. The Library is housed in a three storied modern building having all modern amenities and provides access to digital resources to meet the scholarly and information needs of faculty, staff and students. The link to various resources and services is available on the home page of the library. The library organizes orientation program once in a year to promote the use of digital resources amongst the users. The Central Library of the IIT Kharagpur was established in 1951. The library is well equipped with modern facilities and resources, print as well as electronic collection to cater the information needs of academic society. The link to all the digital and printed resources and services is available at library's home page. The quarterly orientation programs are organized to encourage the use of digital resources and services.

### **1 Objectives of the Study**

The primary objectives of this study are as under:

1. To know the awareness of users about the available digital information resources and services.
2. To find out the frequency of usage of digital information resources and services by the users.
3. To know the importance of various digital resources and services amongst the users.
4. To find out the purpose of using digital information resources and services.
5. To identify the problems being faced by the users in utilization of digital information resources and services.
6. To find out the satisfaction level of users regarding digital information resources and services.

### **2 Literature Review**

The study of relevant literature provides an insight to the investigator about the research that has already been published on the topic and its allied areas. The study conducted by Gupta and Sharma (2016) on Satisfaction in use of digital information resources & services among the students of IIT Madras revealed that 64.7% of the respondents prefer to use print as well as digital resources. 79.7% respondent's purpose of using digital information resources is to collect the study material whereas 83.8% respondent's purpose of using digital information services is to know the availability of material. The central library is widely used by majority of respondents (57.8%) to use Digital Information Resources and Services. 64.5% respondents are satisfied with the available Digital Information Resources and services. Kwadzo (2015) in the article Awareness and Use of Electronic Databases by Geography and Resource Development Information Studies Graduate Students in University of Ghana revealed that 96.9% students were aware of electronic databases. The majority of respondents (87.5%) were satisfied with the available electronic databases. The students felt that required information can easily be accessed using electronic databases. Roopa and Krishnamurthy (2015) conducted a study on Analysis of Digital Library Services at Engineering Colleges in Karnataka: A Study. The study revealed that libraries were subscribing more e-journals as compared to e-books. The majority of 97.3% librarians had supported and encouraged the users to use online lecture notes. Singh and Khan (2015) conducted a study on User' Attitude towards Electronic Resources in IIT Libraries: An Evaluative Study. The study revealed that majority of users visited the libraries web sites and used the library resources and services. The study revealed that e-resources were preferred by the users because these resources are

easy to access, relevant and more information is retrieved and save the time.

Bhat and Mudhol (2014) studied the knowledge and use of Digital Resources by Medical College Students of Govt. Medical College Jammu. The findings showed that 55.63% of the respondents were familiar with the digital resources and used e-mails (39.37%) and internet (34.38%) on daily basis. The study revealed that 71.25% respondents' used digital resources to collect subject specific information and 49.37% respondents agreed that adequate information can be obtained using digital resources. The survey conducted by Anil Kumar and Reddy (2014) revealed that 73.03% research scholars used e-journals for their research work. The majority of respondents, i.e. 64.52%, preferred the use of e-journals for research work whereas 54.61% respondents still considered print journals are more important compared to e-journals. The majority of research scholars (73.64%) were satisfied with the search engines. The study conducted by Msagati (2014) revealed that 94.4% respondents were interested in using scholarly electronic journals, 86.2% respondents used search engines on daily basis to search the required information. 89.7% respondent mentioned that their purpose of using e-journals is for writing research proposal. The survey conducted by

Gakibaya, Ikojo-Odongo and Okello-Obura (2013) depicted that majority of respondents were aware of electronic information resources and mentioned that electronic information resources provide more information than print formats. The study also revealed that 92% respondents were aware of Electronic information resources; 77% uses the e-resources in the University Library and 57.5% respondents considered that Electronic Information Resources provide a wider range of information. The study conducted by Bhatia (2011) revealed that 47.27% respondents preferred to use e-books and 25.84% of the respondents used e-books frequently. The main purpose of accessing e-resources was to keep up to date on subject of interests and knowledge growth.

### **3 Methodology**

The survey method was adopted to collect the data. The questionnaire was distributed among Research Scholars (RS), Post Graduate (PG) and Under Graduate (UG) students of the IIT Kanpur and IIT Kharagpur Central Library. A total of 359 questionnaire had been received back from the 375 questionnaires distributed among the respondents of IIT Kanpur and after critically examine only 354 respondent's response have been found in order for analysis. A total of 483 questionnaire had been received back from the 500 questionnaires distributed among the respondents of IIT Kharagpur and after critically examine only 451 responses have been found in order for analysis. The data has been analysed using suitable statistical methods viz. Percentage and Chi-square ( $\chi^2$ ) Test using SPSS-20 (Statistical Package for Social Science).

**4 Data Analysis**

The analysis of the data collected from the respondents of IIT Kanpur and IIT Kharagpur is presented below:

**Table 1: Number of Respondents**

IIT	Respondents			Total
	RS	PG	UG	
<b>Kanpur</b>	<b>107</b> 30.2%	<b>115</b> 32.5%	<b>132</b> 37.3%	<b>354</b> 100.0%
<b>Kharagpur</b>	<b>136</b> 30.2%	<b>151</b> 33.5%	<b>164</b> 36.4%	<b>451</b> 100.0%
<b>Total</b>	<b>243</b> 30.2%	<b>266</b> 33.0%	<b>296</b> 36.8%	<b>805</b> 100.0%

A total of 359 questionnaire had been received back from the 375 questionnaires distributed among the respondents of IIT Kanpur and after critically examine only 354 respondent’s response have been found in order for analysis. A total of 483 questionnaire had been received back from the 500 questionnaires distributed among the respondents of IIT Kharagpur and after critically examine only 451 responses have been found in order for analysis. The table 1 shows that total of 36.8% Undergraduate respondents followed by 33% Postgraduate respondents and 30.2% Research Scholars responses have been analysed.

**Table 2: Frequency of Visit to Library**

IIT	Daily	Twice	Weekly	Once in a Month	Rarely	Never	Total
<b>Kanpur</b>	<b>146</b> 41.2%	<b>95</b> 26.8%	<b>52</b> 14.7%	<b>50</b> 14.1%	<b>11</b> 3.1%	<b>0</b> 0%	<b>354</b> 100%
<b>Kharagpur</b>	<b>136</b> 30.2%	<b>103</b> 22.8%	<b>68</b> 15.1%	<b>92</b> 20.4%	<b>50</b> 11.1%	<b>2</b> 0.4%	<b>451</b> 100%
<b>Total</b>	<b>282</b> 35%	<b>198</b> 24.6%	<b>120</b> 14.9%	<b>142</b> 17.6%	<b>61</b> 7.6%	<b>2</b> 0.2%	<b>805</b> 100%

The frequency of visit to the library by the respondents of the respective IIT is presented in the Table 2. The table shows that majority of respondents visits the library of their respective institutes. It is clear from the table that respondents from IIT Kanpur (41.2%) followed by 30.2% respondents from IIT Kharagpur visits the library daily. Only 0.4% respondents from IIT Kharagpur stated that they never visited the library.

**Table 3: Purpose of Visit to Library**

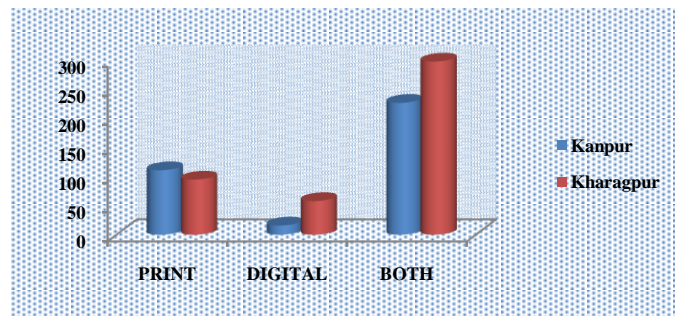
IIT	Issue/Return of Books	Consult Periodicals	Photocopy/Printouts	Material for Assignments	Material for Research
<b>Kanpur</b>	<b>250</b> 70.6%	<b>104</b> 29.4%	<b>63</b> 17.8%	<b>99</b> 28%	<b>150</b> 42.4%
<b>Kharagpur</b>	<b>264</b> 58.5%	<b>132</b> 29.3%	<b>33</b> 7.3%	<b>98</b> 21.7%	<b>106</b> 23.5%
<b>Total</b>	<b>514</b> 63.9%	<b>236</b> 29.3%	<b>96</b> 11.9%	<b>197</b> 24.5%	<b>256</b> 31.8%

The purpose of visit by the respondents to visit the library is depicted in the table 3. It is clear from the table that majority of respondents (70.6%) from IIT Kanpur followed by 58.5% respondents from IIT Kharagpur visit the library to get the issue/return of books whereas 42.4% respondents from IIT Kanpur followed by 23.5%

respondents from IIT Kharagpur visit the library to collect material for research. Only 17.8% respondents from IIT Kanpur and 7.3% respondents from IIT Kharagpur visit the library to get the photocopy / printout of the required material.

**Table 4: Preference of Resources**

IIT	Print	Digital	Both	Total	$\chi^2$ df =2
Kanpur	111 31.4%	16 4.5%	227 64.1%	354 100%	23.333
Kharagpur	95 21.1%	58 12.9%	298 66.1%	451 100%	
Total	206 25.6%	74 9.2%	525 65.2%	805 100%	



**Figure 1: Preference of Resources**

The preference of resources used by the respondents is shown in the Table 4. The table depicts that majority of respondents (65.2%) prefer to use print + digital resources whereas only 9.2% respondents prefer to use digital resources. The table further depicts that 66.1% respondents from IIT Kharagpur followed by 64.1% respondents from IIT Kanpur prefer to use print + digital resources. The calculated value of chi square is 23.333 and the degree of freedom is 2. The calculated value of chi square is significant at the 5 % level ( $\chi^2 \leq 0.05$ ). The calculated value of  $\chi^2$  being more than the tabulated value so there is a significant difference among the respondents as far as the preference of resources is concerned.

**Table 5: Awareness of Digital Information Resources**

Digital Information Resource	IIT		Total
	Kanpur	Kharagpur	
	N=354	N=451	
E-Books	308 87%	434 96.2%	742 92.2%
E-Journals	311 87.9%	405 89.8%	716 88.9%
E-Newsletters	261 73.7%	352 78%	613 76.1%
E-Thesis	264 74.6%	355 78.7%	619 76.9%
Indexing Databases	209 59%	278 61.6%	487 60.5%
Abstracting Databases	210 59.3%	298 66.1%	508 63.1%
Bibliographic Databases	199 56.2%	275 61%	474 58.9%
CD-DVD Databases	157 44.4%	271 60.1%	428 53.2%
E-Standards	201 56.8%	251 55.7%	452 56.1%
Institutional Repository	185 52.3%	295 65.4%	480 59.6%
Institute Publications	228 64.4%	365 80.9%	593 73.7%
Subject Specific Portals	234 66.1%	308 68.3%	542 67.3%

The awareness of various digital information resources is depicted in the table 5. The table shows that majority of respondents are aware of all the available digital information resources. The table clearly depicts that majority of respondents from IIT Kharagpur are more aware of digital information resources as compared to respondents of IIT Kanpur. The majority 96.2% respondents from IIT Kharagpur followed by 87% respondents are aware of e-books. 89.8% respondents from IIT Kharagpur followed by 87.2% respondents from IIT Kanpur are aware of e-journals. 80.9% respondents from IIT Kharagpur as compared to 64.4% respondents from IIT Kanpur are aware of institute publications. 78.7% respondents from IIT Kharagpur as compared to 74.6% respondents from IIT Kanpur are aware of e-thesis. 78% respondents from IIT Kharagpur followed by 73.7% respondents from IIT Kanpur are aware of e-newsletter. The majority of respondents (60.1%) from IIT Kharagpur are aware of CD-DVD databases whereas only 44.4% respondents from IIT Kanpur are aware of the resource.

**Table 6: Frequency of use of Digital Information Resources**

Digital Information Resources	IIT	Never	Rarely	Sometimes	Frequently	Most Frequently
E-Books	Kanpur	18 5.8%	90 29.2%	85 27.6%	80 26%	35 11.4%
	Kharagpur	50 11.5%	96 22.1%	142 32.7%	85 19.6%	61 14.1%
E-Journals	Kanpur	46 14.8%	42 13.5%	126 40.5%	47 15.1%	50 16.1%
	Kharagpur	36 8.9%	104 25.7%	102 25.2%	98 24.2%	65 16%
E-Newsletter	Kanpur	28 10.7%	118 45.2%	68 26.1%	36 13.8%	11 4.2%
	Kharagpur	58 16.5%	153 43.5%	91 25.9%	41 11.6%	9 2.6%
E-Thesis/ Dissertations	Kanpur	42 15.9%	115 43.6%	52 19.7%	36 13.6%	19 7.2%
	Kharagpur	68 19.2%	142 40%	87 24.5%	42 11.8%	16 4.5%
Indexing Databases	Kanpur	24 11.5%	86 41.1%	62 29.7%	32 15.3%	5 2.4%
	Kharagpur	56 20.1%	90 32.4%	79 28.4%	47 16.9%	6 2.2%
Abstracting Databases	Kanpur	36 17.1%	64 30.5%	75 35.7%	26 12.4%	9 4.3%
	Kharagpur	58 19.5%	94 31.5%	100 33.6%	41 13.8%	5 1.7%
Bibliographic Databases	Kanpur	12 6%	92 46.2%	66 33.2%	23 11.6%	6 3%
	Kharagpur	24 8.7%	104 37.8%	112 40.7%	31 11.3%	4 1.5%
CD/DVD Databases	Kanpur	34 21.7%	62 39.5%	51 32.5%	7 4.5%	3 1.9%
	Kharagpur	68 25.1%	86 31.7%	104 38.4%	10 3.7%	3 1.1%
E-Standards	Kanpur	38 18.9%	100 49.8%	41 20.4%	19 9.5%	3 1.5%
	Kharagpur	58 23.1%	88 35.1%	62 24.7%	38 15.1%	5 2%
Institute Repository	Kanpur	18 9.7%	62 33.5%	73 39.5%	25 13.5%	7 3.8%
	Kharagpur	50 16.9%	90 30.5%	106 35.9%	36 12.2%	13 4.4%
Institute Publications	Kanpur	16 7%	82 36%	80 35.1%	38 16.7%	12 5.3%
	Kharagpur	58 15.9%	116 31.8%	122 33.4%	56 15.3%	13 3.6%
Subject Specific Portals	Kanpur	10 4.3%	34 14.5%	112 47.9%	54 23.1%	24 10.3%
	Kharagpur	36 11.7%	68 22.1%	102 33.1%	83 26.9%	19 6.2%

The frequency of use of various digital information resources among the respondents is shown in the Table 6. The data has been analysed considering only the respondents who are aware of particular digital information resource, so the numbers of respondents vary in analysis for different digital information resources. It is clear from the table that the majority of respondents (66.4%) from IIT Kharagpur make use of e-books sometimes/frequently/most frequently as compared to respondents (64.9%) from IIT Kanpur. Also the respondents (53.5%) from IIT Kharagpur make use of bibliographic databases sometimes/ frequently/most frequently as compared to

respondents (47.7%) from IIT Kanpur. The majority of 81.2% respondents from IIT Kanpur make use of subject specific portal sometimes/ frequently/most frequently as compared to respondents (66.2%) from IIT Kharagpur. Similarly the 71.7% respondents from IIT Kanpur make use of e-journals sometimes/ frequently/most frequently as compared to respondents (65.4%) from IIT Kharagpur. The 57% respondents from IIT Kanpur make use of institute publications sometimes/ frequently/most frequently as compared to respondents (52.3%) from IIT Kharagpur. 56.8% respondents from IIT Kanpur make use of institute repository sometimes/ frequently/most frequently as compared to respondents (52.5%) from IIT Kharagpur. 52.4% respondents from IIT Kanpur make use of abstracting database sometimes/ frequently/most frequently as compared to respondents (49%) from IIT Kharagpur.

**Table 7: Importance of Digital Information Resources**

Digital Information Resources	IIT	Not Important	Somewhat Important	Very Important	Essential	No Opinion
E-Books	Kanpur	4 1.3%	68 22.1%	110 35.7%	109 35.4%	17 5.5%
	Kharagpur	16 3.7%	128 29.5%	187 43.1%	70 16.1%	33 7.6%
E-Journals	Kanpur	30 9.6%	62 19.9%	115 37%	79 25.4%	25 8%
	Kharagpur	46 11.4%	90 22.2%	165 40.7%	77 19%	27 6.7%
E-Newsletter	Kanpur	24 9.2%	129 49.4%	60 23%	18 6.9%	30 11.5%
	Kharagpur	50 14.2%	186 52.8%	65 18.5%	20 5.7%	31 8.8%
E-Thesis/ Dissertations	Kanpur	16 6.1%	99 37.5%	72 27.3%	40 15.2%	37 14%
	Kharagpur	38 10.7%	128 36.1%	113 31.8%	45 12.7%	31 8.7%
Indexing Databases	Kanpur	22 10.5%	70 33.5%	68 32.5%	28 13.4%	21 10%
	Kharagpur	36 12.9%	98 35.3%	80 28.8%	33 11.9%	31 11.2%
Abstracting Databases	Kanpur	18 8.6%	74 35.2%	62 29.5%	33 15.7%	23 11%
	Kharagpur	34 11.4%	92 30.9%	100 33.6%	44 14.8%	28 9.4%
Bibliographic Databases	Kanpur	12 6%	62 31.2%	77 38.7%	31 15.6%	17 8.5%
	Kharagpur	36 13.1%	80 29.1%	100 36.4%	33 12%	26 9.5%
CD/DVD Databases	Kanpur	8 5.1%	46 29.3%	61 38.9%	31 19.7%	11 7%
	Kharagpur	20 7.5%	78 29.4%	88 33.2%	61 23%	18 6.8%
E-Standards	Kanpur	24 11.9%	84 41.8%	51 25.4%	18 9%	24 11.9%
	Kharagpur	44 17.5%	98 39%	64 25.5%	14 5.6%	31 12.4%
Institute Repository	Kanpur	20 10.8%	68 36.8%	60 32.4%	26 14.1%	11 5.9%
	Kharagpur	38 12.9%	80 27.1%	98 33.2%	43 14.6%	36 12.2%
Institute Publications	Kanpur	8 3.5%	74 32.5%	91 39.9%	40 17.5%	15 6.6%
	Kharagpur	20 5.5%	130 35.6%	141 38.6%	49 13.4%	25 6.8%

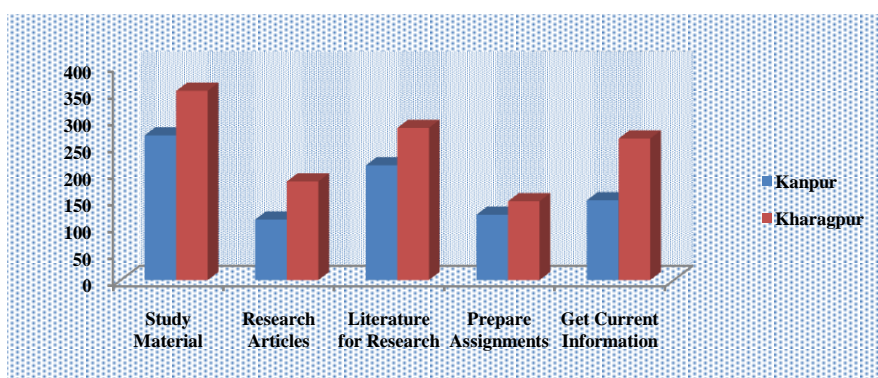


Subject Specific Portals	Kanpur	8 3.4%	52 22.2%	106 45.3%	55 23.5%	13 5.6%
	Kharagpur	20 6.5%	72 23.4%	132 42.9%	71 23.1%	13 4.2%

The importance of various digital information resources among the respondents is depicted in the Table 7. The data has been analysed considering only the respondents who are aware of particular digital information resource, so the numbers of respondents vary in analysis for different digital information resources. It is clear from the table that majority of respondents from IIT Kanpur mentioned that digital information resources are very important / essential as compared to respondents from IIT Kharagpur. E-books are considered as very important / essential by 71.1% respondents from IIT Kanpur in comparison of 59.2% respondents from IIT Kharagpur. Subject specific portals are considered as very important / essential by 68.8% respondents from IIT Kanpur followed by 65.9% respondents from IIT Kharagpur. E-journals are considered as very important / essential by 62.4% respondents from IIT Kanpur in comparison of 59.8% respondents from IIT Kharagpur. CD/DVD databases are considered as very important / essential by 58.6% respondents from IIT Kanpur as compared to 56.2% respondents from IIT Kharagpur. Bibliographic databases are considered as very important / essential by 54.3% respondents from IIT Kanpur in comparison of 48.4% respondents from IIT Kharagpur.

**Table 8: Purpose of using Digital Information Resources**

IIT	Study Material	Research Articles	Literature for Research	Prepare Assignments	Get Current Information
Kanpur	270 76.3%	113 31.9%	214 60.5%	122 34.5%	149 42.1%
Kharagpur	353 78.3%	184 40.8%	284 63%	147 32.6%	264 58.5%
Total	623 77.4%	297 36.9%	498 61.9%	269 33.4%	413 51.3%



**Figure 2: Purpose of using Digital Information Resources**

The purpose of using digital information resources by the respondents is shown in the table 8. It is clear from the table that the purpose of using digital information resources by 78.3% respondents from IIT Kharagpur is to get the study material as compared to 76.3% respondents from IIT Kanpur. Similarly the purpose of using digital information resources by 63% respondents from IIT Kharagpur is to search the literature for the research as compared to 60.5% respondents from IIT Kanpur.

**Table 9: Awareness of Digital Information Services**

Digital Information Services	IIT		Total N=805
	Kanpur N=354	Kharagpur N=451	
Virtual Library Tour	236 66.7%	304 67.4%	540 67.1%
OPAC/ Web OPAC	303 85.6%	401 88.9%	704 87.5%
CD ROM Database Service	239 67.5%	284 63%	523 65%
Bibliographic Database Service	223 63%	292 64.9%	515 64.1%
Current Content Service	184 52%	261 58%	445 55.3%
E-Alerts	277 78.2%	311 69%	588 73%
E-mail Assistance Service	227 64.1%	315 69.8%	542 67.3%
E-Circulation	206 58.2%	266 59%	472 58.6%
Online Reference Service	244 68.9%	292 64.7%	536 66.6%
Current Awareness Service	173 48.9%	248 55%	421 52.3%
Newspaper Clipping Service	177 50%	251 55.7%	428 53.2%
Electronic Document Delivery	228 64.4%	288 63.9%	516 64.1%
Online Reservation of Reading Material	278 78.5%	347 76.9%	625 77.6%
Video Conferencing Service	154 43.5%	262 58.1%	416 51.7%
Discussion Groups and Forums	171 48.7%	260 57.6%	431 53.7%
Blogs	209 59%	288 63.9%	497 61.7%
Feedback	254 71.8%	340 75.4%	594 73.8%

The awareness of various digital information services among the respondents is shown in the Table 9. It is clear from the table that the majority of respondents are aware of all the digital information services. It is clear from the table that respondents from IIT Kharagpur are more aware of the digital information services than the respondents from IIT Kanpur. The digital information services that the respondents of the IIT Kharagpur are more aware than the respondents of IIT Kanpur includes virtual library tour; OPAC/Web OPAC; bibliographic database service; current content service; e-mail assistance service; e-circulation; current awareness service; newspaper clipping service; electronic document delivery service; video & teleconferencing service; discussion groups and forums; blogs and feedback service, whereas the digital information services that the respondents of the IIT Kanpur are more aware than the respondents of IIT Kharagpur includes CD-ROM database service; e-alerts; online reference service and online reservation of reading material.

**Table 10: Frequency of use of Digital Information Services**

Digital Information Services	IIT	Never	Rarely	Sometimes	Frequently	Most Frequently
Virtual Library Tour	Kanpur	30 12.7%	80 33.9%	75 31.8%	38 16.1%	13 5.5%
	Kharagpur	26 8.6%	74 24.3%	132 43.4%	62 20.4%	10 3.3%
OPAC/ Web OPAC	Kanpur	20 6.6%	60 19.8%	89 29.4%	79 26.1%	55 18.2%
	Kharagpur	18 4.5%	54 13.5%	154 38.4%	104 25.9%	71 17.7%
CD ROM Database Service	Kanpur	26 10.9%	82 34.3%	81 33.9%	34 14.2%	16 6.7%
	Kharagpur	30 10.6%	70 24.6%	120 42.3%	60 21.1%	4 1.4%
Bibliographic Database Service	Kanpur	22 9.9%	76 34.1%	80 35.9%	37 16.6%	8 3.6%
	Kharagpur	32 11%	76 26%	126 43.2%	48 16.4%	10 3.4%
Current Content Service	Kanpur	14 7.6%	52 28.3%	82 44.6%	25 13.6%	11 6%
	Kharagpur	26 10%	56 21.5%	118 45.2%	42 16.1%	19 7.3%
E-Alerts	Kanpur	12 4.3%	64 23.1%	118 42.6%	54 19.5%	29 10.5%
	Kharagpur	30 9.6%	118 37.9%	102 32.8%	50 16.1%	11 3.5%
E-mail Assistance Service	Kanpur	24 10.6%	82 36.1%	75 33%	28 12.3%	18 7.9%
	Kharagpur	38 12.1%	68 21.6%	132 41.9%	64 20.3%	13 4.1%
E-Circulation	Kanpur	16 7.8%	70 34%	68 33%	45 21.8%	7 3.4%
	Kharagpur	44 16.5%	74 27.8%	72 27.1%	66 24.8%	10 3.8%
Online Reference Service	Kanpur	50 20.5%	70 28.7%	66 27%	46 18.9%	12 4.9%
	Kharagpur	36 12.3%	70 24%	90 30.8%	85 29.1%	11 3.8%
Current Awareness Service	Kanpur	50 28.9%	58 33.5%	41 23.7%	23 13.3%	1 .6%
	Kharagpur	38 15.3%	76 30.6%	80 32.3%	52 21%	2 .8%
Newspaper Clipping Service	Kanpur	26 14.7%	66 37.3%	57 32.2%	26 14.7%	2 1.1%
	Kharagpur	32 12.7%	72 28.7%	86 34.3%	52 20.7%	9 3.6%
Electronic Document Delivery	Kanpur	32 14%	58 25.4%	96 42.1%	30 13.2%	12 5.3%
	Kharagpur	18 6.3%	72 25.3%	118 41.4%	61 21.4%	16 5.6%
Online Reservation of Reading Material	Kanpur	24 8.6%	72 25.9%	111 39.9%	43 15.5%	28 10.1%
	Kharagpur	26 7.5%	70 20.2%	171 49.3%	46 13.3%	34 9.8%
Video Teleconferencing Service	Kanpur	62 40.3%	65 42.2%	22 14.3%	5 3.2%	0 0%
	Kharagpur	50 19.1%	94 35.9%	94 35.9%	22 8.4%	2 .8%
Discussion Groups and Forums	Kanpur	41 24%	70 40.9%	39 22.8%	17 9.9%	4 2.3%
	Kharagpur	40 15.4%	66 25.4%	100 38.5%	42 16.2%	12 4.6%
Blogs	Kanpur	24 11.5%	72 34.4%	79 37.8%	30 14.4%	4 1.9%
	Kharagpur	46 16%	86 29.9%	119 41.3%	30 10.4%	7 2.4%
Feedback	Kanpur	44 17.3%	78 30.7%	91 35.8%	31 12.2%	10 3.9%
	Kharagpur	36 10.6%	92 27.1%	166 48.8%	36 10.6%	10 2.9%

The frequency of use of various digital information services among the respondents is shown in the Table 10. The data has been analysed considering only the respondents who are aware of particular digital information service, so the numbers of respondents vary in analysis for different digital information services. It is clear from the table that the majority of respondents from IIT Kharagpur are using digital information services more than the respondents from IIT Kanpur. It is evident from the table that OPAC/Web OPAC service is used by majority of respondents (92%) from IIT Kharagpur sometimes/ frequently/ most frequently as compared to 83.7% respondents from IIT Kanpur. The majority of respondents (72.6%) from IIT Kanpur are using e-alert service sometimes/ frequently/ most frequently as compared to 52.4% respondents from IIT Kharagpur. 72.3% respondents from IIT Kharagpur are using online reservation of reading material service sometimes/ frequently/ most frequently as compared to 65.5% respondents from IIT Kanpur. 68.6% respondents from IIT Kharagpur are using current content service sometimes/ frequently/ most frequently as compared to 64.1% respondents from IIT Kanpur. 68.4% respondents from IIT Kharagpur are using electronic document delivery service sometimes/ frequently/ most frequently as compared to 60.5% respondents from IIT Kanpur. The table depicts that video and teleconferencing service is not popular among the respondents as only 45% respondents from IIT Kharagpur and 17.5% respondents from IIT Kanpur are using the service sometimes/ frequently/ most frequently.

**Table 11: Importance of Digital Information Resources**

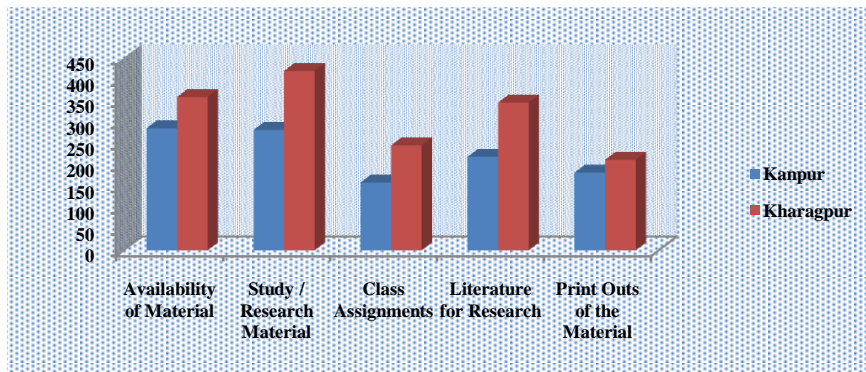
Digital Information Services	IIT	Not Important	Somewhat Important	Very Important	Essential	No Opinion
Virtual Library Tour	Kanpur	36 15.3%	78 33.1%	74 31.4%	24 10.2%	24 10.2%
	Kharagpur	30 9.9%	98 32.2%	112 36.8%	42 13.8%	22 7.2%
OPAC/ Web OPAC	Kanpur	34 11.2%	70 23.1%	103 34%	86 28.4%	10 3.3%
	Kharagpur	12 3%	60 15%	201 50.1%	113 28.2%	15 3.7%
CD ROM Database Service	Kanpur	18 7.5%	62 25.9%	101 42.3%	37 15.5%	21 8.8%
	Kharagpur	18 6.3%	52 18.3%	134 47.2%	66 23.2%	14 4.9%
Bibliographic Database Service	Kanpur	22 9.9%	56 25.1%	92 41.3%	37 16.6%	16 7.2%
	Kharagpur	26 8.9%	68 23.3%	128 43.8%	48 16.4%	22 7.5%
Current Content Service	Kanpur	50 27.2%	68 37%	46 25%	12 6.5%	8 4.3%
	Kharagpur	14 5.4%	80 30.7%	104 39.8%	37 14.2%	26 10%
E-Alerts	Kanpur	36 13%	56 20.2%	122 44%	39 14.1%	24 8.7%
	Kharagpur	28 9%	60 19.3%	172 55.3%	38 12.2%	13 4.2%
E-mail Assistance Service	Kanpur	32 14.1%	44 19.4%	88 38.8%	50 22%	13 5.7%
	Kharagpur	12 3.8%	140 44.4%	40 12.7%	95 30.2%	28 8.9%
E-Circulation	Kanpur	20 9.7%	36 17.5%	109 52.9%	32 15.5%	9 4.4%
	Kharagpur	12 4.5%	36 13.5%	146 54.9%	51 19.2%	21 7.9%
Online Reference Service	Kanpur	64 26.2%	71 29.1%	61 25%	30 12.3%	18 7.4%
	Kharagpur	30	72	108	50	32

		10.3%	24.7%	37%	17.1%	11%
Current Awareness Service	Kanpur	<b>32</b> 18.5%	<b>56</b> 32.4%	<b>66</b> 38.2%	<b>15</b> 8.7%	<b>4</b> 2.3%
	Kharagpur	<b>32</b> 12.9%	<b>56</b> 22.6%	<b>78</b> 31.5%	<b>38</b> 15.3%	<b>44</b> 17.7%
Newspaper Clipping Service	Kanpur	<b>18</b> 10.2%	<b>40</b> 22.6%	<b>70</b> 39.5%	<b>23</b> 13%	<b>26</b> 14.7%
	Kharagpur	<b>28</b> 11.2%	<b>58</b> 23.1%	<b>80</b> 31.9%	<b>40</b> 15.9%	<b>45</b> 17.9%
Electronic Document Delivery	Kanpur	<b>52</b> 22.8%	<b>44</b> 19.3%	<b>82</b> 36%	<b>37</b> 16.2%	<b>13</b> 5.7%
	Kharagpur	<b>10</b> 3.5%	<b>48</b> 16.7%	<b>124</b> 43.1%	<b>68</b> 23.6%	<b>38</b> 13.2%
Online Reservation of Reading Material	Kanpur	<b>24</b> 8.6%	<b>82</b> 29.5%	<b>100</b> 36%	<b>56</b> 20.1%	<b>16</b> 5.8%
	Kharagpur	<b>28</b> 8.1%	<b>68</b> 19.6%	<b>167</b> 48.1%	<b>68</b> 19.6%	<b>16</b> 4.6%
Video Teleconferencing Service	Kanpur	<b>26</b> 16.9%	<b>54</b> 35.1%	<b>64</b> 41.6%	<b>4</b> 2.6%	<b>6</b> 3.9%
	Kharagpur	<b>32</b> 12.2%	<b>46</b> 17.6%	<b>94</b> 35.9%	<b>46</b> 17.6%	<b>44</b> 16.8%
Discussion Groups and Forums	Kanpur	<b>13</b> 7.6%	<b>32</b> 18.7%	<b>73</b> 42.7%	<b>25</b> 14.6%	<b>28</b> 16.4%
	Kharagpur	<b>12</b> 4.6%	<b>40</b> 15.4%	<b>116</b> 44.6%	<b>60</b> 23.1%	<b>32</b> 12.3%
Blogs	Kanpur	<b>22</b> 10.5%	<b>42</b> 20.1%	<b>81</b> 38.8%	<b>42</b> 20.1%	<b>22</b> 10.5%
	Kharagpur	<b>24</b> 8.3%	<b>32</b> 11.1%	<b>116</b> 40.3%	<b>85</b> 29.5%	<b>31</b> 10.8%
Feedback	Kanpur	<b>26</b> 10.4%	<b>38</b> 15.1%	<b>108</b> 43%	<b>59</b> 23.5%	<b>20</b> 8%
	Kharagpur	<b>26</b> 7.6%	<b>80</b> 23.5%	<b>124</b> 36.5%	<b>73</b> 21.5%	<b>37</b> 10.9%

The importance of various digital information services among the respondents is given in the Table 11 . The data has been analysed considering only the respondents who are aware of particular digital information service, so the numbers of respondents vary in analysis for different digital information services. It is clear from the table that majority of respondents from IIT Kharagpur mentioned that digital information services are very important / essential as compared to respondents from IIT Kanpur. E-books are considered as very important / essential by 71.1% respondents from IIT Kanpur in comparison of 59.2% respondents from IIT Kharagpur (Tables 5-7). Subject specific portals are considered as very important / essential by 68.8% respondents from IIT Kanpur followed by 65.9% respondents from IIT Kharagpur. E-journals are considered as very important / essential by 62.4% respondents from IIT Kanpur in comparison of 59.8% respondents from IIT Kharagpur. CD/DVD databases are considered as very important / essential by 58.6% respondents from IIT Kanpur as compared to 56.2% respondents from IIT Kharagpur. Bibliographic databases are considered as very important / essential by 54.3% respondents from IIT Kanpur in comparison of 48.4% respondents from IIT Kharagpur (Tables 6-9)

**Table 12: Purpose of using Digital Information Services**

IIT	Availability of Material	Study / Research Material	Class Assignments	Literature for Research	Print Outs of the Material
Kanpur	286 80.8%	282 79.7%	159 44.9%	219 61.9%	182 51.4%
Kharagpur	359 79.6%	420 93.1%	246 54.5%	346 76.7%	212 47%
<b>Total</b>	<b>645</b> 80.1%	<b>702</b> 87.2%	<b>405</b> 50.3%	<b>565</b> 70.2%	<b>394</b> 48.9%



**Figure 3: Purpose of using Digital Information Services**

The purpose of using various digital information services by the respondents of IIT Kanpur and IIT Kharagpur is shown in the Table 12. It is clear from the table that the purpose of using digital information services by 93.1% respondents from IIT Kharagpur followed by 79.7% respondents from IIT Kanpur is to get the study/research material. The purpose of using digital information services by 80.8% respondents from IIT Kanpur followed by 79.6% from IIT Kharagpur is to know the availability of required material. The table depicts that the purpose of using digital information services by 76.7% respondents from IIT Kharagpur followed by 61.9% respondents from IIT Kanpur is to get the literature for research.

**Table 13: Problems Faced in using Digital Information Resources/ Services**

IIT	Time Consuming	Slow Speed	Not Easy to Access	Not Familiar with System	Lack of Trained Staff	$\chi^2$ df = 4
Kanpur	44 12.4%	66 18.6%	115 32.5%	135 38.1%	88 24.9%	
Kharagpur	108 23.9%	123 27.3%	191 42.4%	87 19.3%	78 17.3%	
<b>Total</b>	<b>152</b> 18.9%	<b>189</b> 23.5%	<b>306</b> 38%	<b>222</b> 27.6%	<b>166</b> 20.6%	

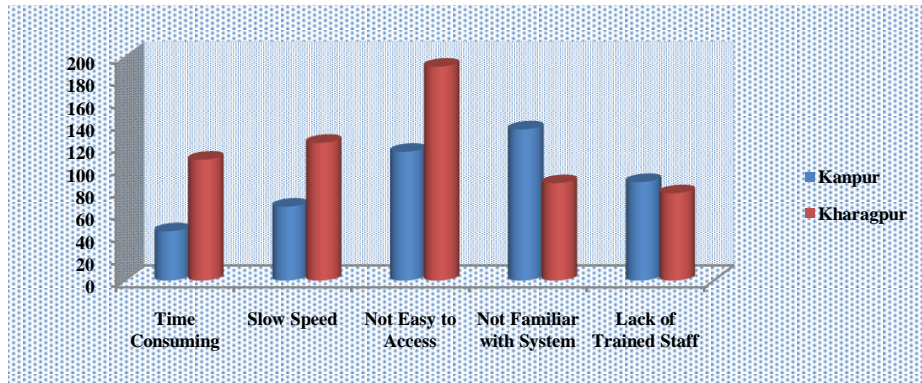


Figure 4: Problems Faced in using Digital Information Resources/ Services

The problems being faced by the respondents are depicted in the Table 13. It is evident from the table that only few respondents are facing problems in use of digital information resources and services. The table shows that 42.4% respondents from IIT Kharagpur followed by 32.5% respondents from IIT Kanpur finds that it is not easy to get required information using digital information resources and services. 38.9% respondents from IIT Kanpur and 19.3% respondents from IIT Kharagpur agree that they are not familiar with the digital system. The calculated value of chi square is significant at 5% level ( $\chi^2 \leq 0.05$ ). The calculated value of  $\chi^2$  is more than the tabulated value so there is a significant difference among respondents as far as problems faced by the respondents in using digital information resources and services are concerned.

Table 14: Need of Training

IIT	Strongly Agree	Agree	Disagree	Somewhat Disagree	No Opinion	Total	$\chi^2$
Kanpur	100 28.2%	188 53.1%	8 2.3%	3 .8%	55 15.5%	354 100%	1.519 df = 4
Kharagpur	131 29%	249 55.2%	8 1.8%	2 .4%	61 13.5%	451 100%	
Total	231 28.7%	437 54.3%	16 2%	5 .6%	116 14.4%	805 100%	

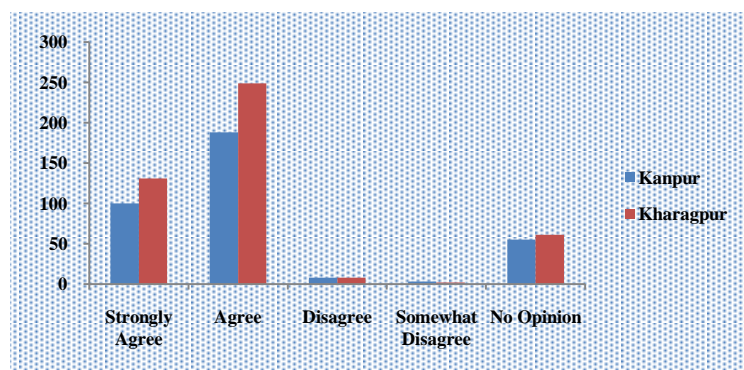


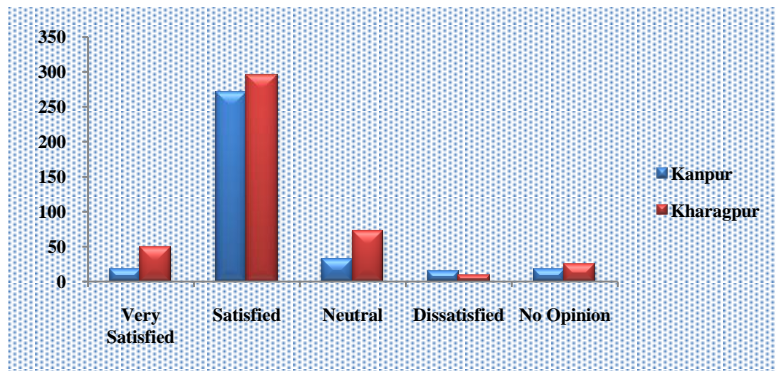
Figure 5: Need of Training

The view of respondents for conduct of training programs is shown in the Table 14. The table depicts that majority of the respondents agree that more training programs should be organized for the optimum use of digital information resources and services. The table shows that majority of respondents (55.2%) from IIT Kharagpur

followed by 53.1% respondents from IIT Kanpur agree that their library should arrange more training programs whereas only 2.3% respondents from IIT Kanpur and 1.8% respondents from IIT Kharagpur disagree with the statement that library should arrange more training programs. The calculated value of chi square is significant at 5% level ( $\chi^2 \leq 0.05$ ). The calculated value of  $\chi^2$  is less than the tabulated value so there is no significant difference among respondents as far as need of training programs is concerned.

**Table 15: Satisfaction with Digital Information Resources and Services**

IIT	Very Satisfied	Satisfied	Neutral	Dissatisfied	No Opinion	Total	$\chi^2$
Kanpur	18 5.1%	271 76.6%	32 9%	15 4.2%	18 5.1%	354 100%	22.651 df = 4
Kharagpur	49 10.9%	295 65.4%	73 16.2%	9 2%	25 5.5%	451 100%	
Total	67 8.3%	566 70.3%	105 13%	24 3%	43 5.3%	805 100%	



**Figure 6: Satisfaction with Digital Information Resources and Services**

The satisfaction of respondents with the available digital information resources and services is depicted in the Table 15. The table shows that majority of respondents (76.4%) of IIT Kanpur are satisfied as compared to 65.4% respondents from IIT Kharagpur whereas 10.9% respondents from IIT Kharagpur are very satisfied as compared to 5.1% respondents from IIT Kanpur. The table further depicts that only 2% respondents from IIT Kharagpur as compared to 4.2% respondents from IIT Kanpur are dissatisfied with the available digital information resources and services. The calculated value of chi square is significant at 5% level ( $\chi^2 \leq 0.05$ ). The calculated value of  $\chi^2$  is more than the tabulated value so there is a significant difference of satisfaction among the respondents in the use of digital information resources and services.

**5 Conclusion**

The study revealed that majority of respondents visits the library to make use of the available resources only 0.4% respondents from IIT Kharagpur stated that they never visited the library. The majority of respondents of IITs prefer to use Print+ Digital resources for their study and research.

The majority of respondents from IIT Kharagpur and IIT Kanpur are aware of digital information resources and services. The digital information resources e-books, e-journals, abstracting database, institute repository,



institute publications and subject specific portal are more frequently used than the other digital information resource whereas virtual library tour, OPAC/Web OPAC, CD ROM Database service, bibliographic database service, current content service, e-alerts, e-mail assistance service, e-circulation, online reference service, online reservation of reading material are more frequently used as compared to other digital information services. The majority of respondents from IIT Kanpur and Kharagpur consider the digital information resources and services are important for their studies and research.

The purpose of using digital information resources by the majority of respondents is to get the study material, literature for the research and to get current information whereas the purpose of using digital information services by majority of respondents using digital information services by majority of respondents is to get the study/ research material, to know the availability of material and to get the literature for research.

The study shows that the majority of respondents of the IITs are satisfied with the available digital information resources and services but still some of the respondents feel that it is not easy to access the information using digital resources and services. The majority of respondents agree that more orientation/ training programs be arranged for the optimum utilization of the available digital information resources and services.

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