



Satisfaction in using Digital Information Resources by the students of IIT Madras and IIT Roorkee: A study

Sanjeev Sharma
Assistant Professor
Dept of Library & Information Science,
Kurukshetra University

Sanjay Gupta
Librarian
SLIET, Longowal

Abstract

Indian Institute of Technology (IIT) is the institute of national importance established by Govt. of India to create technocrats. The libraries of the IIT's are well equipped with digital information resources to meet the exhaustive information needs of its users. The present study aims to provide an overview of the awareness, purpose, importance and satisfaction of the users of libraries of IIT Madras and IIT Roorkee with the digital information resources. The study shows that the majority of respondents (65.6%) prefer to use print + digital resources whereas 24.17% respondents prefer only print and 10.23% respondents prefer only digital resources for their study and research. The majority of respondents are aware of digital information resources available in the libraries of their respective institute. The most important digital information resources among the students of IIT are e-journals and e-books. The study shows that majority of respondent's i.e.57.21 % are satisfied and 29.14% respondents are highly satisfied with the available digital information resources.

Keywords: Digital Resources, E-Resources, Digital Information Resources, IIT

1. Introduction

The resources available in the library of an academic institute are supplement to the class room teaching and learning. The growth of traditional resources in the science and technology is manifold and it becomes difficult for information managers to keep the users updated of the literature available already published in the field of his/her interest using traditional methods of disseminating the information. The technology advancement suggested the means and ways to overcome the problem of providing required information to its users using computers and network. The information available on network is useless to the users unless they know the means to extract the required information from the available resources.



The Central Library of Indian Institute of Technology, Madras provides information services and access to digital and printed resources to its users to cater their information requirements. Digital Knowledge Centre of the library facilitates its users to access large number of e-resources subscribed by the library. The library has ISO 9001:2008 certification from TUV NORD of Germany for establishment and maintenance of quality library system, services and procedures. The Central Library organizes quarterly users' orientation programs for its users to keep them aware of available digital resources and various services provided for the optimum utilization of its resources. The Library of IIT Roorkee is functioning in the present building named Mahatma Gandhi Central Library since 2007. The library is having all types of print as well as non-print /digital resources for the optimum utilization by its users to meet their information requirements. The air conditioned library of the institute is equipped with all the modular infrastructure and equipment for the comfort of its users. The library organizes users orientation programs for its users to make them aware about various digital resources available and various services provided by the library for the optimum utilization of its resources.

2. Literature Review

A number of studies have been conducted on the use of digital / e resources. An effort has been made to review the related literature already published on the use of digital/ e-resources. The literature review provides an understanding of the topic under study for analysis. An effort has been made to review the related literature on the topic. Sharma and Sharma (2018) conducted a study on E-resources and their use in Private Engineering College Libraries revealed that majority of colleges have subscribed e-journals through consortium but these are not subscribed regularly and the resources available on internet like CD ROM, databases are not being used sufficiently.

Yebowaah and Pllockey (2017) in their article on Awareness and Use of Electronic Resources in University Libraries: A Case Study of University for Development Studies Library observed that majority of respondents are users of the library but only 65% respondents are aware of e-resources and only 32.5% respondents make use of e-resources in the library. The password problem and low internet speed are the major challenges faced by the respondents. 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 majority of Research Scholars (97.5%) and Postgraduate students (89.4%) are aware of e-journals and majority of Undergraduate students (89.2%) are aware of e-books. The purpose of using digital information resources by majority of Research Scholars (96.6%) is to search for the literature relevant to their research whereas 87.9% Postgraduate students and 84.1% Undergraduate students use the resources for getting the study material.



Kwadzo (2015) 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.

Gupta and Sharma (2015) observed that majority of Research Scholars 92.93% are aware of e-journals whereas 89.19% Postgraduate Students and 83.84% Undergraduate students are aware of e-books. The study further shows that the purpose of majority of Research Scholars i.e. 88.9% to use digital information sources is to search the literature for research whereas 79.3% Postgraduate students purpose is to get the study material and 52% Undergraduate students purpose is to get the current information. It is also clear from the findings that majority of the respondents are satisfied with the available digital information resources.

Ahamed and Syamala (2014) conducted a study on Use of Electronic Resources in Select Engineering College Libraries of Chittoor District and concluded that 54.89% respondents make use of online journals and majority of students are satisfied with e-journals, only 17.91% respondents were not satisfied with the e-journals. The study shows that problems faced by the students include no proper guidance, slow internet speed and less number of computers.

Mittal and Bala (2013) in their study on use of e-resources in the universities observed that staff and students are less aware of the e-resources and universities should arrange training programs for students and faculties to enhance their knowledge of e-resources.

Murugesan and Pandian (2012) revealed that majority of respondents make use of digital resources and the purpose of 55% respondents to use digital resources is educational. The study further depicts that 93% respondents are of the view that digital resources are time saving, informative and easy to use. The majority of 77.5% respondents consider that digital resources are not the substitute of the print resources and digital resources are only supplement to the print resources.

3. Objectives

The primary objectives of this study are as under:

- To study the preference of resources used by the respondents;
- To find the awareness of respondents about the available digital information resources;
- To find the importance of various digital information resources amongst the respondents;
- To know the purpose of using digital information resources;
- To determine the satisfaction level of respondents.



4. Methodology

The survey method was adopted to collect the data for analysis from the Research Scholars (RS), Post Graduate (PG) and Under Graduate (UG) students of the IIT Madras and IIT Roorkee Central Library. A total of 450 questionnaires were distributed among the students of IIT Madras and IIT Roorkee respectively. 433 (96.22%) questionnaires were received back from the students of IIT Madras and 437 (97.11%) questionnaires were collected back from the students of IIT Roorkee. After examining the questionnaire received back 408 questionnaire from IIT Madras and 403 questionnaire from IIT Roorkee have been found in order for analysis.

5. Data Analysis

Table 1
Respondents

IIT	Research Scholar	Post Graduate	Under Graduate	Total
Madras	119 29.2%	132 32.4%	157 38.5%	408 100.0%
Roorkee	119 29.5%	135 33.5%	149 37.0%	403 100.0%
Total	238 29.3%	267 32.9%	306 37.7%	811 100.0%

The data have been analysed on the basis of 408 questionnaires /responses received from IIT Madras respondents and 403 questionnaires /responses received from IIT Roorkee. The Table 1 shows the category wise respondents whose response have been found in order and considered for analysis of data. It is clear from the table that a total of 29.3% Research Scholars, 32.9% Post Graduate and 37.7% Under Graduate students from IITs have responded to the questionnaire.

Table 2
Gender wise Respondents

IIT	Male	Female	Total
Madras	262 64.2%	146 35.8%	408 100.0%
Roorkee	288 71.5%	115 28.5%	403 100.0%
Total	550 67.8%	261 32.2%	811 100.0%

The Table 2 shows that a total of 32.2% female and 67.8% male respondents participated in the survey. It is evident from the table that 64.2% male and 35.8% female from IIT Madras and 71.5% male and 28.5% female respondents response have been found in order for analysis.

Table 3
Frequency of Visit to Library

IIT	Daily	Twice	Weekly	Once in a month	Rarely	Never	Total
Madras	168 41.20%	146 35.80%	63 15.40%	14 3.40%	17 4.20%	0 0%	408 100%
Roorkee	143 35.50%	103 25.60%	68 16.90%	57 14.10%	31 7.70%	1 0.20%	403 100%
Total	311 38.35	249 30.70	131 16.15	71 8.75	48 5.92	1 0.12	811 100.0%

The Table 3 shows that 38.35% respondents visit the library daily followed by 30.7% respondents visit the library twice a week. 41.2% respondents from IIT Madras and 35.5% respondents from IIT Roorkee visit the library daily whereas 35.8% respondents from IIT Madras and 25.6% respondents from IIT Roorkee visit the library twice a week. Only one respondent from IIT Roorkee responded that he/she never visited the library.

Table 4
Purpose of Visit to Library

IIT	Issue/Return of Books	Consult Periodicals	Photocopy/ Printouts	Material for Assignments	Material for Research
Madras (n=408)	292 71.57%	81 19.85%	18 4.41%	164 40.20%	130 31.86%
Roorkee (n=403)	266 66.00%	91 22.58%	84 20.84%	117 29.03%	103 25.56%
Total (n=811)	558 68.80%	172 21.21%	102 12.58%	281 34.65%	233 28.73%

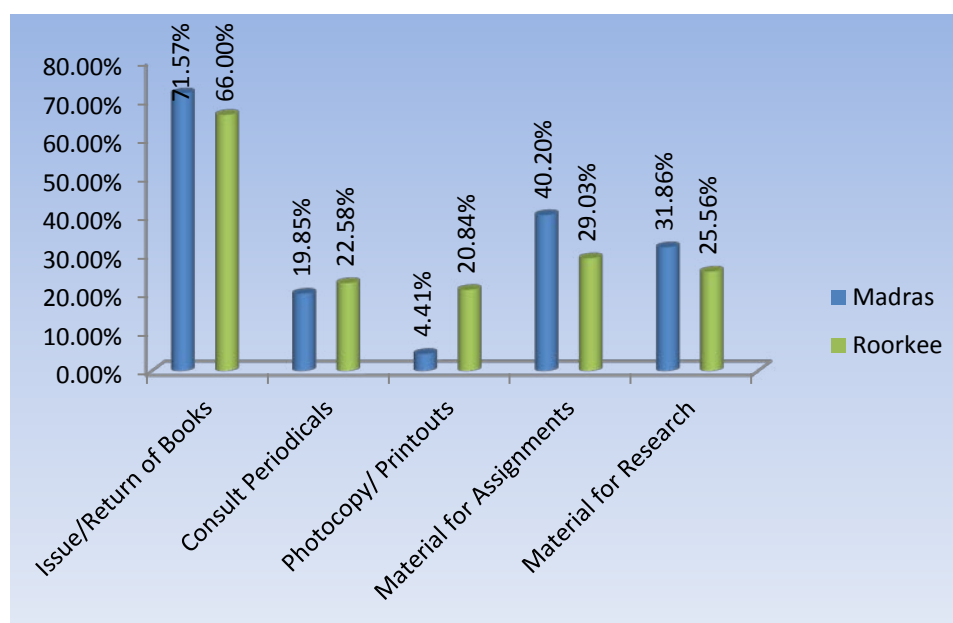


Figure 1: Purpose of Visiting Library

The purpose of visit to the library is shown in the Table 4. The majority of respondents visit the library to get issue / return of books. 71.57% respondents from IIT Madras and 66% respondents from IIT Roorkee visit the library to get issue / return of the books. The table depicts that total of 68.8% respondent's visits the library for issue / return of books followed by 34.65% respondents visits the library to get the material for assignments and 28.73% respondents visit the library to get the material for research work. The purpose of visiting library by the respondents is shown graphically in figure 1.

Table 5
Preference of Use of Resources

IIT	PRINT	DIGITAL	BOTH	Total	
Madras	104 25.49%	40 9.80%	264 64.71%	408 100.00%	0.842
Roorkee	92 22.83%	43 10.67%	268 66.50%	403 100.00%	
Total	196 24.17%	83 10.23%	532 65.60%	811 100.00%	

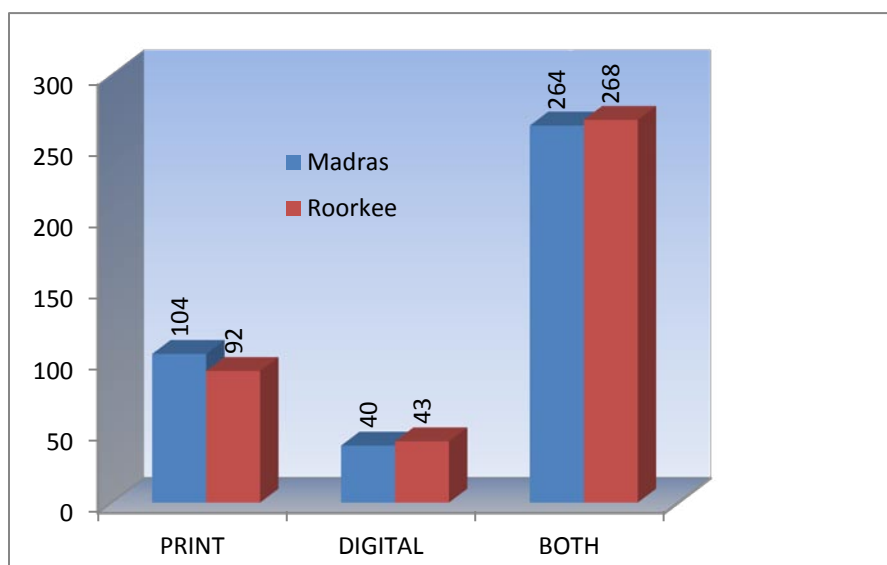


Figure 2: Preference of use of Resources

The majority of respondents i.e. 65.6% prefer to use print + digital resources whereas 24.17% respondents prefer only print resources for their study and research. It is clear from the Table 5 that 66.5% respondents from IIT Roorkee followed by 64.71% respondents from IIT Madras prefer to use print and digital resources for their study / research that the majority of respondents 65.6% prefer to use print and digital resources followed by 24.17% respondents prefer only print resources for their study and research.



Table 6
Awareness of Digital Information Resources (DIS)

DIS	Madras (n=408)	Roorkee (n=403)	Total (n=811)	χ^2	df
E-books	361 88.48%	384 95.29%	745 91.86%	12.559	1
E- Journals	355 87.01%	335 83.13%	690 85.08%	2.408	1
Indexing Database	220 53.92%	237 58.81%	457 56.35%	1.969	1
Abstracting Databases	202 49.51%	216 53.60%	418 51.54%	1.357	1
Bibliographic Databases	200 49.02%	213 52.85%	413 50.92%	1.192	1
CD/DVD Databases	207 50.74%	241 59.80%	448 55.24%	6.740	1
E-Standards	158 38.73%	206 51.12%	364 44.88%	12.583	1
Institutional Repository	178 43.63%	224 55.58%	402 49.57%	11.593	1
Institute Publications	266 65.20%	281 69.73%	547 67.45%	1.896	1

The Table 6 shows the awareness of respondents for various digital information resources. It is clear from the table that total of 91.86% respondents are aware of e-books followed by 85.08% respondents who are aware of e-journals; 67.45% respondents are aware of Institute publications; 56.35% respondents are aware of indexing database; 55.24% respondents are aware of CD/DVD databases; 51.54% respondents are aware of abstracting database and 50.92% respondents are aware of bibliographic databases. 95.29% respondents from IIT Roorkee followed by 88.48% respondents from IIT Madras are aware of e-books. 87.01% respondents from IIT Madras followed by 83.13% respondents from IIT Roorkee are aware of e-journals. The table shows that majority of respondents from IIT Roorkee are aware of all the available digital information resources whereas majority of respondents from IIT Madras are aware of e-books; e-journals; indexing database; CD/DVD database and institute publications only.



The calculated value of Chi-Square is more than the tabulated value so there is a significant difference amongst the respondents as far as awareness of E-books; CD/DVD database; E-standards and Institutional Repository are concerned.

The calculated value of Chi-Square is less than the tabulated value so there is no significant difference amongst the respondents as far as awareness of E-journals; Indexing database; Abstracting database; Bibliographic database and Institutional Publications are concerned.

Table 7
Importance of Digital Information Resources

DIR		IIT Madras	IIT Roorkee	Total	Rank
E-books	n	361	384	745	2
	Mean	2.94	2.84	2.89	
	SD	1.013	1.057	1.036	
E- Journals	n	355	335	690	1
	Mean	2.93	2.89	2.91	
	SD	1.198	1.075	1.139	
Indexing Database	n	220	237	457	9
	Mean	2.53	2.79	2.66	
	SD	1.191	1.126	1.164	
Abstracting Databases	n	202	216	418	8
	Mean	2.72	2.72	2.72	
	SD	1.104	1.091	1.096	
Bibliographic Databases	n	200	213	413	4
	Mean	2.76	2.86	2.81	
	SD	1.010	0.999	1.005	
CD/DVD Databases	n	207	241	448	6
	Mean	2.72	2.82	2.77	
	SD	0.998	1.136	1.075	
E-Standards	n	158	206	364	5
	Mean	2.68	2.87	2.79	
	SD	1.030	1.264	1.170	



Institutional Repository	n	178	224	409	7
	Mean	2.75	2.77	2.76	
	SD	0.948	0.999	0.976	
Institute Publications	n	266	281	547	3
	Mean	2.76	2.86	2.81	
	SD	0.950	0.965	0.958	

The Table 7 shows the importance of various digital information resources used by the respondents of IIT Madras and IIT Roorkee. The data have been analysed considering only the respondents aware of digital information resources so the numbers of respondents vary in analysis for different digital information resources. The table shows the importance of the use of DIR by the respondents of IITs. The e-journals with a mean value ($\mu= 2.91, \sigma \pm 1.139$) ranked 1 is being most important digital information resource than other resources. E-books with a mean value ($\mu= 2.89, \sigma \pm 1.036$) is ranked 2 followed by institute publications with a mean value ($\mu= 2.81, \sigma \pm 0.958$) is ranked 3; Bibliographic databases with a mean value ($\mu= 2.81, \sigma \pm 1.005$) is ranked 4; E-Standards with a mean value ($\mu= 2.79, \sigma \pm 1.170$) is ranked 5; CD/DVD databases with a mean value ($\mu= 2.77, \sigma \pm 1.075$) is ranked 6; institutional repository with a mean value ($\mu= 2.76, \sigma \pm 0.976$) is ranked 7; Abstracting databases with a mean value ($\mu= 2.76, \sigma \pm 1.096$) is ranked 8; Indexing database with a mean value ($\mu= 2.66, \sigma \pm 1.164$) is ranked 9. It is clear from the table that e-journals; e-books and institute publications are more important digital information resources than other digital information resources.

Table 8
Purpose of Using Digital Information Resources

IIT	Study Material	Write Research Articles	Literature for Research	Prepare Assignments	Get Current Information
Madras (N=408)	325 79.66%	117 28.68%	222 54.41%	204 50.00%	210 51.47%
Roorkee (N=403)	314 77.92%	117 29.03%	180 44.67%	142 35.24%	203 50.37%
Total	639 78.79%	234 28.85%	402 49.57%	346 42.66%	413 50.92%

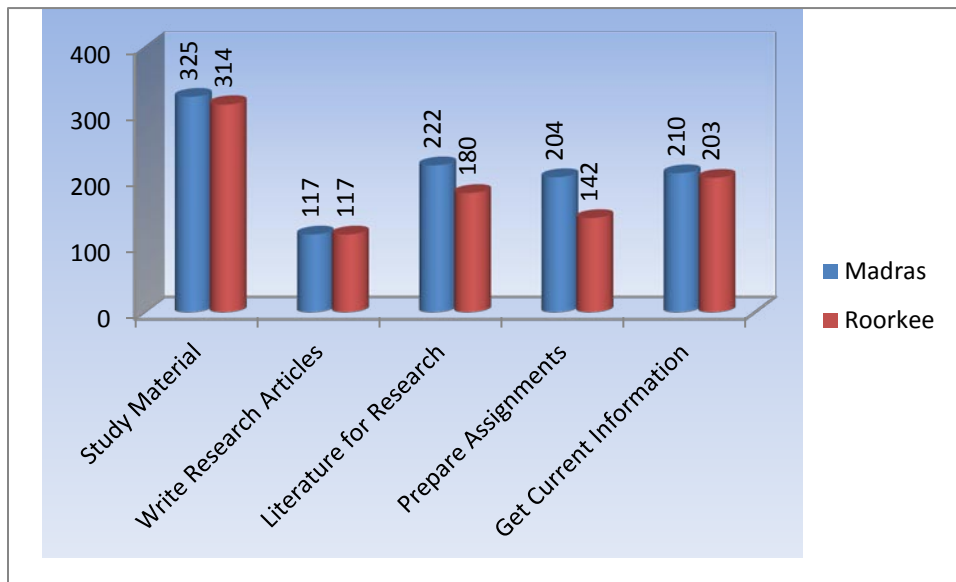


Figure 3: Purpose of using Digital Information Resources

The Table 8 shows the purpose of using digital information resources by the respondents. The table shows that the purpose of using digital information resources by 79.66% respondents from IIT Madras is to get the study material followed by 54.41% respondents purpose of using digital information resources is to search the literature for research and 51.47% respondents are using digital information resources to get the current information. The purpose of using digital information resources by 77.92% respondents from IIT Roorkee is to get the study material followed by 50.37% purpose of using digital information resources is to get the current information.

Table 9
Place of using Digital Information Resources

IIT	Central Library	Computer Centre	Department	Hostel	Other	Total
Madras	236 57.84%	7 1.72%	48 11.76%	115 28.19%	2 0.49%	408 100.00%
Roorkee	231 57.32%	16 3.97%	73 18.11%	79 19.60%	4 0.99%	403 100.00%
Total	467 57.58%	23 2.84%	121 14.92%	194 23.92%	6 0.74%	811 100.00%

The first preference of place to use the digital information resources by the respondents is Central Library. Table 9 shows that majority of respondents 57.58% prefer Central Library to use digital information resources whereas 23.19% respondents prefer to use the digital information resources in the hostels. The table shows that 57.84% respondents from IIT Madras prefer Central Library followed by 28.19% respondents who prefer hostel to use digital information resources.

Table 10
Respondents view for Training

IIT	Strongly Agree	Agree	Disagree	Strongly Disagree	No Opinion	Total
Chennai	121 29.66%	192 47.06%	17 4.17%	9 2.21%	69 16.91%	408 100.00%
Roorkee	156 38.71%	210 52.11%	9 2.23%	2 0.50%	26 6.45%	403 100.00%
Total	277 34.16%	402 49.57%	26 3.21%	11 1.36%	95 11.71%	811 100.00%

The majority of respondents agree that more training programs to make them aware should be arranged by the library for the optimum utilization of digital information resources and services. The Table 10 depicts that majority of 49.57% respondents agree that the library should arrange more training programs, whereas 34.16% respondents strongly agree that more training programs should be arranged by the library for maximum use of the resources.

The calculated value of chi square for degree of freedom 4 is 31.6. The calculated value of chi square is significant ($\chi^2 \leq 0.05$). The calculated value of χ^2 is more than the tabulated value so there is a significant variation in the opinion among the respondents for arranging more training programs by the library.

Table 11
Respondents view for frequency of Training

IIT	Monthly	Quarterly	Half Yearly	Yearly	No Opinion	Total
Madras	25 6.13%	23 5.64%	14 3.43%	240 58.82%	106 25.98%	408 100.00%
Roorkee	26 6.45%	25 6.20%	26 6.45%	126 31.27%	200 49.63%	403 100.00%
Total	51 6.29%	48 5.92%	40 4.93%	366 45.13%	306 37.73%	811 100.00%

The Table 11 shows the respondents view for arranging training programs. The majority of respondents 45.13% mentioned that training should be arranged yearly whereas 37.73% respondents have no opinion for arranging training. 58.82% respondents from IIT Madras followed by 31.27% respondents from IIT Roorkee agree that training should be arranged once in a year for the optimum utilization of the resources.

Table 12
Satisfaction in using Digital Information resources

IIT	Fully Satisfied	Satisfied	Somewhat Dissatisfied	Not Satisfied	Total	χ^2
Madras	109 26.72%	237 58.09%	44 10.78%	18 4.41%	408 100.00%	6.87 df=4
Roorkee	93 23.08%	227 56.33%	68 16.87%	15 3.72%	403 100.00%	
Total	202 24.91%	464 57.21%	112 13.81%	33 4.07%	811 100.00%	

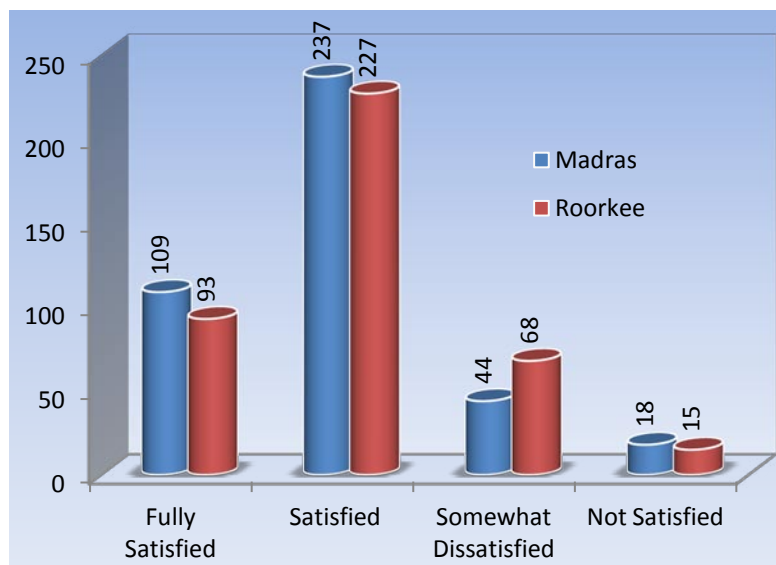


Figure 4 Satisfaction in using Digital Information Resources

The Table 12 shows that majority of respondents i.e. 57.21% are satisfied followed by 24.91% fully satisfied with the available digital information resources. Only 4.07% respondents are not satisfied with the digital information resources. The table shows that 58.09% respondents from IIT Madras followed by 56.33% respondents from IIT Roorkee are satisfied whereas 26.72% respondents from IIT Madras followed by 23.08% from IIT Roorkee are fully satisfied with the available digital information resources. The calculated value of Chi-Square is 6.87 and the degree of freedom is 3. The calculated value of chi square is significant at 5% level ($\chi^2 \leq 0.05$). The calculated value of χ^2 is less than the tabulated value so there is no significant difference amongst the respondents of IIT Madras and IIT Roorkee as far as satisfaction of respondents for digital information resources is concerned.

6. Conclusion

The study shows that the majority of respondents prefer to use digital and print resources for their study and research. The study shows that the majority of respondents are aware of e-books followed by e-journals; Institute publications; indexing database; CD/DVD Database; abstracting database and Bibliographic database. It implies that the e-journals are more important digital information resource among the respondents followed by e-books and institute publications. The study reveals that the purpose of majority of respondents using digital information resources is to get the study material. The study further shows that majority of respondents 57.21% are satisfied followed by 24.91% respondents who are fully satisfied with the available digital information resources.



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