

Digital Library as a Learning Hub: A Survey among Research Scholars of National Institute of Technology, Calicut

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ABSTRACT

Advent of electronic resources has made a great impact in learning process. Due to the fast access to information, nowadays everyone is preferring e-resources. The concept of a library had changed from a storehouse of information to a dissemination centre of information. Here, digital libraries have started to play a keen role. Today, almost all libraries have digital libraries for storing, processing and disseminating the information. This study is focused to analyse how the research scholars of National Institute of Technology Calicut make use of Nalanda digital library for their learning and research purpose. Online questionnaire method is used for the study. The analysis indicates that the majority of researchers (64.38%) are moderately familiar with e-resources available in their digital library and mostly used e-resources are e-journals (49.32%). Most researchers (69.86%) use e-resources regularly for research and academic work purposes. The key reasons behind the use of e-resources are easy access to information and the availability of needed information. Majority of the researchers (57.53%) are accessing these resources from their department libraries/labs and they opined that information from these e-resources will never be a substitute for a library. Among the respondents, majority (49.32%) are satisfied with the digital library resources.

Keywords: Digital library usage, E-resource Usage, NALANDA digital library, NIT Calicut, Research scholars

INTRODUCTION

The term 'digital era' has made many changes in the world. It includes every aspect of human life from the application of e-gadgets in day-to-day life to the commerce and banking facilities. Also, this has made a tremendous impact in the learning process also. Learning includes various levels; such as primary, secondary, university level, research level etc. The implementation of digital information transfer helps those who are searching and disseminating information to access the information they need in the shortest time possible. The use of digital tools in the field of education has taken its place with online copies of books, journals, encyclopaedias etc. Today, various electronic resources are available in almost all institutions. All these are collectively called digital resources and probably it will function under a digital library. Therefore, it is the need of the hour to review the available tools with the user group to check whether or not the set is sufficient. Since technology is discussed daily and new knowledge came into being every day. The aim of this study is to examine the use of Nalanda digital library (National Institute of Technology initiative, Calicut, Kerala) as a learning center by NIT Calicut research scholars.

LITERATURE REVIEW

Srinivasaragavan *et al.* (2020) conducted a study to identify the use of e-resources among research scholars

at St. Joseph's College, Trichy. A questionnaire was used to collect the data required, and the study found that the majority of users were aware of e-resources availability. The study showed that only 63.50% of respondents choose to use the online edition, 36.50% of users prefer to read written journals and 31.70% prefer to use the N-list for research. Furthermore, the findings show that most respondents search for e-resources via the link features available on the library website.

Singh (2020) in his research, observed that developments in computer technology and the internet have brought about a major change in the last few decades and that the reliance on e-resources now accessible on the internet is equal to print resources. The cost of the library's papers and other expenses pushing them to pursue new fields of collaboration, including e-consortia. Singh (2020) studies the awareness and usage of various e-resources subscribed by Punjabi University Patiala, and the analysis shows the student satisfaction rates when using e-resources. Study findings suggest users would be more likely to subscribe to e-resources. The findings illustrate the e-resources preferences and significance among UG students, PG students and research scholars.

Mani et al. (2019) in their report, claimed that eresources are the embodiment of any cognitive feature in modern education. The study looked at using eresources among Manonmaniam Sundaranar University (MSU) students in Tirunelveli, Tamil Nadu. A descriptive method of surveying was introduced using the questionnaire as a tool for collecting relevant student data. The study indicates that 78.3% of respondents are competent and use e-resources, 63% use eresources 2-3 times a week and then 53% use eresources for research purposes. The study reveals that 17.3% use e-resources to develop technical skills, 39% comment that lack of preparation is a major obstacle to successful use of e-resources etc and 35% are extremely satisfied with e-collection from the library. The study also calls on the library to play a significant role in users' use of e-resources, and to promote the

use of e-resources, and to educate users to efficiently use e-resources.

Gaffer and Gunjal (2019) conducted a study in the Biju Patnaik Central Library (BPCL) at the National Institute of Technology (NIT), Rourkela, Odisha, to investigate the various aspects of the knowledge, access and use of e-journals among research scholars. Only research scholars were actually considered under study and used the questionnaire as a data collection method for the study. The study shows that user education programs (UEPs), reliable quick internet distribution and a sufficient number of computers should be provided to ensure continuous access which can effectively increase the use of e-journals.

Amanullah *et al.* (2019) conducted a study at the University of Kashmir on the use of e-resources by faculty and research scholars and reported that, with the development of information communication technology, production and access to e-resources have increased variedly. The research focuses on analyzing the teachers and analysts 'perspectives using Allama Iqbal Library's e-database. This study was implemented with the help of a well-designed questionnaire and showed a substantial increase in the usage of databases, a positive indication of the attitude of users towards eresources, and most library users "amount of time spent" engage with accessible e-databases.

OBJECTIVES

- To examine Nalanda digital library resources and its use among research scholars at National Institute of Technology, Calicut (NITC).
- To identify the frequency of use of e-resources available in the Nalanda Digital Library, the intent and reasons behind the use of e-resources etc.
- To identify the most valuable e-resource among available e-resource collections in the Nalanda Digital Library.

- To evaluate the utility and most useful feature of eresources, level of satisfaction in using e-resources etc.
- To analyze the teaching requirements of students for making Nalanda digital library more user friendly.

METHODOLOGY

The research looked at the use of digital libraries resources among research scholars at the National Institute of Technology, Calicut and how they use the digital library to perform their research. To meet the study goals, a well-structured online questionnaire was prepared and distributed among researchers who at the time of data collection visited the Nalanda Digital Library. 146 valid filled in responses collected from 200 questionnaires distributed. The obtained data were analysed, consolidated, tabulated, and interpreted by frequency and percentage using appropriate statistical tools. The data analysis was performed using the software SPSS and Microsoft Excel 2019.

ANALYSIS AND FINDINGS

This section deals with the analysis part of the study.

Demographic Characteristics of the Sample

Table 1 shows the sample distribution according to its

 Table 1: Demographic Characteristics

Demographic Charac	teristics	No. of Respon- dents	Percen- tage
Gender	Male	86	58.90
	Female	60	41.10
Age Group	18 to 25	16	10.96
	25 to 35	98	67.12
	Above 35	32	21.92
Place of Residence	Urban	64	43.84
	Rural	82	56.16
Hosteller/Day Scholar	Hosteller	88	60.27
	Day Scholar	58	39.73

demographic characteristics such as gender, age group, location, etc.

Distribution of the Sample Population by Department

Table 2 indicates how the respondents are distributed according to their respective departments. The majority of those sampled are from Mechanical Engineering (15.07%), Computer Science and Engineering (12.33%), Chemistry, Civil Engineering, Electronics and Communication Engineering (10.96%). And the other departments are displayed in the table.

Table 2:	Sampling	Distribution	by	Department
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Department	No. of Respon- dents	Percen- tage
Architecture and Planning	6	4.11
Chemical Engineering	10	6.85
Chemistry	16	10.96
Civil Engineering	16	10.96
Computer Science & Engineering	18	12.33
Electrical Engineering	12	8.22
Electronics & Communication Engineering	16	10.96
Mathematics	12	8.22
Mechanical Engineering	22	15.07
Physics	6	4.11
School of Biotechnology	2	1.37
School of Management Studies	4	2.74
School of Nano Science and Technology	6	4.11
Total	146	100.00

Level of Digital Library Familiarity

Diagram research in Figure 1 and 2 reveals that over half of the respondents (64.38%) were moderately familiar with Nalanda digital library resources, followed by extremely familiar with 17.81% and somewhat familiar with 15.07% of respondents. Just a small percentage (2.74%) of respondents are slightly familiar with digital library services and none of the respondents are unfamiliar with them. Digital Library as a Learning Hub: A Survey among Research Scholars of National Institute of Technology, Calicut



Figure 1: Level of Digital Library Familiarity



Figure 2: Digital Library Resource Usage

Mostly Used Digital Library Resource

The digital library subscribes to various e-resources including online and offline resources, which include ebooks, e-journals and e-databases. Here, the investigator seeks to classify what types of e-resources researchers are often using. The study confirms that 49.32% use ejournals, and 27.40% use e-resources other than ebooks, e-journals and e-databases. This may include enewspapers, audio-video sites, and self-studying sites. 16.44% of respondents use e-books and 6.85% use edatabases. Hence, e-journals are the widely used eresources among research scholars in the Nalanda digital library.

Time of Using of Digital Library Resource

The Figure 3 shows how many years the e-resources have been used for.



Figure 3: Duration (in Years) of E-Resource Usage

The figure's analysis shows that most people (54.79%) have been using e-resources for over 5 years. Additionally, 26.03% of respondents used e-resources for between 3 to 5 years and 17.81% used from 1 to 3 years. So, few respondents (1.37%) started using e-resources within a year.

Frequency of Visiting Digital Library

Researchers are visiting Nalanda digital library. Here, an effort has been made to show how frequently they are visiting digital libraries in Figure 4.



Figure 4: Frequency of visiting Digital Library

Diagram data reveals that most researchers (69.86%) are visiting digital libraries daily. Soon thereafter, 23.29% and 6.85% of respondents are visiting digital libraries weekly and monthly respectively. No one rarely visits the digital library, which shows that all researchers are visiting and using the digital library.

Duration of Digital Library Usage per Day

The Figure 5 shows how long the researchers are using e-resources every day. The findings indicate that most respondents (31.51%) use e-resources for 1 to 2 hours a day, and 28.77% use e-resources for more than 3 hours a day, and the same percentage of users use 2 to 3 hours. The remaining respondents (10.96%) use less than 1 hour for e-resources a day.



Figure 5: Digital Library Resource Usage Time per Day

Reasons to make Use of Digital Library Resource

Researchers are preferring electronic resources for many reasons; fast access to information, time saving, updated information etc. An effort was made here to examine the purpose behind the researchers use of eresources using Nalanda digital library. Multiple responses are allowed.

Table 3: Reasons for Digital Library Use

Reasons	No. of Respon- dents	Percen- tage*
Fast Access	100	68.49
Time saving	82	56.16
Easy to locate	78	53.42
Provides desired information	78	53.42
Up-to-datedness	72	49.32
Provides unique and better information	40	27.40
Reliability	38	26.03

*Multiple Response

The Table 3 findings indicate that researchers favor digital library services because of quick access to information (68.49% of respondents), time savings (56.16%), locating information easily and the availability of requested information (53.42%) etc. Some other reasons are up-to-date information (49.32%), unique and better information (27.40%) and reliable information (26.03%).

Purpose of Digital Library Usage

Table 4 highlights the intention of research scholars using the digital library resources. Multiple responses are allowed.

Table 4:	Purpose of	Using	Digital	Library	Resources
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Purpose	Number of Respondents	Percentage*
Research Work	134	91.78
Academic purpose	108	73.97
Updating knowledge	80	54.79
Teaching	60	41.10
For preparing notes	56	38.36

*Multiple Response

The table results show that the majority of researchers (91.78%) are using the digital library for their research operations, followed by academic purpose (73.97%), information update (54.79%), teaching activities (41.10%), and note preparation (38.36%). i.e., the lion's share of researchers is definitely using the Nalanda digital library towards their research purposes.

Usefulness of Digital Library Resources

Evaluation of how valuable these digital library services are to the research scholars is important. Research scholars have thus given a ranking from 1 to 5 as 'Never useful' to 'Extremely useful' respectively.

From the analysis, most researchers (61.64%) said these resources were extremely useful to them, 31.51% of researchers said that they were very useful and 6.85%



Figure 6: Digital Library Resource Usefulness

that moderately useful. None of the respondents suggested that the resources in digital libraries are slightly useful and never useful. This shows that the researchers always consider digital library resources useful in Figure 6.

Place to access Digital Library Resource

Researchers will use the electronic resource from different locations such as; digital library, department library, computer centre, personal laptops, home etc. Here, an attempt has been made to analyze the more convenient place for e-resource access by the researchers. The result is graphically represented Figure 7.

It is transparent from the figure that most respondents

access e-resources from their Department libraries.

 Dept. Lab/Library
 Central Library

 57.53%
 Central Library

 9.59%
 Central Library

 9.59%
 Home

 0
 Central Library

 9.59%
 Central Library

 0
 Central Computer Centre)



17.81% of researchers who access e-resources from home, 15.07% from the Central Computer Center (NIT Calicut) and 9.59% from the Central Library are followed by that. It means that researchers are now utilizing resources from outside the library also.

Digital Library Resources as a Substitute for a Library

The technology has developed at a vast rate. But sometimes a digital library cannot satisfy the user like a library. Therefore, an attempt was made to examine user opinions as to whether a digital library could replace a library or not.



Figure 8: Digital Library Resources substitute for a Library

More than half in Figure 8 of those surveyed (52.05%) said that a digital library cannot replace a library, followed by 28.77% of respondents that a library may be replaced by a digital library and 19.18% that a library can be replaced by a digital library. So, it's obvious that the researchers rely on digital resources, but they never think they can replace a library with those resources. This shows the research scholars have a positive attitude towards conventional libraries.

Facilities provided by Library

There are different services that the libraries have to facilitate for their users to make use of digital resources.

Facilities	Number of Respondents	Percentage*
24x7 Accessibility	104	71.23
Adequate No. of Computers	78	53.42
Help & Support	38	26.03
Supporting Devices	20	13.70
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Table 5: Facilities provided by Library

*Multiple Response

Here, researchers using Nalanda's digital library indicated what facilities the library had built for them. Multiple responses are allowed.

The majority of researchers claim that the library's most valuable service is 24*7 accessibility (71.23% of respondents) of e-resources, followed by adequate number of computers (53.42%) for exploring digital library usage, help and support facilities (26.03%) and availability of supporting devices (13.70%) from the library.

Library Help for Digital Library Usage

Libraries can assist users in promoting the use of library services across various methods. Here, an analysis is made to find which kind of services are mostly getting to the researchers by the library in Table 6.

The viewpoint of the researchers is tabulated below. Majority of the researchers is getting supporting service as personal assistance from library staff (61.64%). It is

 Table 7: Preference for Downloading Information

Kind of Support by Library	No. of Respon- dents	Percen- tage
Information Literacy Programmes	22	15.07
Online Tutorial	28	19.18
Personal Help by Library Staff	90	61.64
Others	6	4.11
Total	146	100.00

Table 6: Support by Library in accessing E-resources

followed by other supporting activities such as online tutorials (19.18%), information literacy programmes (15.07%) and other services (4.11%).

Preference for Downloading Information from Eresources

Downloading and storage of information from eresources for future use is very common. This will increase the research effect. Researchers download information through a number of ways. The following table shows the preferences for downloading information in Table 7.

Table review reveals that the easiest way to access the information is to save the information as a soft copy. Depending on the mean score rating, there is a rating of 4.62 (mostly preferred) out of 5 to save as a softcopy, followed by hardcopy (3.67) and bookmarking URLs (3.44). From the one sample t test, softcopy saving

Preference		Preferred Never	Preferred Least	Preferred Sometimes	Preferred	Preferred Most	Mean	S.D.	Т	P Value
Taking hardcopy/printout	n	4	18	46	32	46	3.67	1.13	7.196	0.000*
	%	2.7	12.3	31.5	21.9	31.5				
Download/Save softcopy	n	0	2	6	38	100	4.62	0.64	30.744	0.000*
	%	0	1.4	4.1	26	68.5				
Bookmark the URL for	n	10	14	54	38	30	3.44	1.13	4.703	0.000*
accessing files	%	6.8	9.6	37	26	20.5				

*: Significant (<0.05); Not significant (>0.05)

n-No. of Respondents; %- Percentage of Respondents

method is mostly preferred and the other two methods are preferred and highly significant to access digital library resources by the research scholars, As the mean values are above 3 and the significant values are below 0.05.

Usefulness of Digital Library Features

An electronic resource may have many features to explore its use. This will always help the users to access the information easily. So, in other words, we can claim that the features of e-resources will contribute to successful utilization of e-resources. Here, some features of e-resources rated by researchers are analyzed and tabulated (Table 8). Based on the rating by mean score, search options (4.27), browsing options (4.15), quick access / links (4.05), data refining options (4.04), and downloadable data formats (3.78) are found to be the top five useful features in digital library resources.

Format Used for Downloading E-Resources

The various formats in e-resources for downloading information is a very useful feature of digital library resources. Some commonly used formats are portable document format (pdf), document format (doc), image formats (jpg/png), webpages (html/xml), etc. The preferences among the researchers regarding the format used for downloading information from the e-resources are graphically represented below. Multiple responses are allowed.

Features		Not at all useful	Almost useful	Somewhat useful	Useful	Very useful	Mean	S.D.	P Value
Search options	n	0	4	24	46	72	4.27	0.835	0.000*
	%	0.00%	2.74%	16.44%	31.51%	49.32%	1		
Browsing options	n	0	12	18	52	64	4.15	0.935	0.000*
	%	0.00%	8.22%	12.33%	35.62%	43.84%	1		
Quick access/Links	n	0	10	26	56	54	4.05	0.908	0.000*
	%	0.00%	6.85%	17.81%	38.36%	36.99%	1		
Data refining options	n	0	4	24	80	38	4.04	0.732	0.000*
	%	0.00%	2.74%	16.44%	54.79%	26.03%	1		
Formats of downloaded data	n	0	18	36	52	40	3.78	0.986	0.000*
	%	0.00%	12.33%	24.66%	35.62%	27.40%	1		
Customization	n	2	18	26	72	28	3.73	0.958	0.000*
	%	1.37%	12.33%	17.81%	49.32%	19.18%			
Help & Support	n	8	10	36	62	30	3.66	1.053	0.000*
	%	5.48%	6.85%	24.66%	42.47%	20.55%			
News/Updates	n	6	14	32	68	26	3.64	1.022	0.000*
	%	4.11%	9.59%	21.92%	46.58%	17.81%			
Follow/Sharing via Social Networks	n	8	18	64	36	20	3.29	1.030	0.001*
	%	5.48%	12.33%	43.84%	24.66%	13.70%			
RSS feed/ E-mail Alerting service	n	8	32	48	38	20	3.21	1.101	0.026*
	%	5.50%	21.90%	32.90%	26.00%	13.70%			

Table 8: Usefulness of Features

*: Significant (<0.05); Not significant (>0.05)

n-No. of Respondents; %- Percentage of Respondents



Figure 9: Format Used for Downloading E-Resources

Figure 9 shows that all researchers (100.00%) preferring portable document format (pdf) to download the information, which is followed by 16.44% researchers preferring document format files, 8.22% researchers preferring image formats and 4.11% preferring to save as webpages.

Rating of E-Resources from E-Shodh Sindhu

Nalanda digital library is subscribing various electronic resources. Also, some e-resources are available through E-Shodh Sindhu. Analysis of users' perception shows

E-Resources		Not at all Useful	Slightly Useful	Moderately Useful	Very Useful	Extremely Useful	Mean	Rank
Web of Science	n	2	4	16	30	52	4.21	1
	%	1.37%	2.74%	10.96%	20.55%	35.62%		
Springer Link	n	2	2	26	30	58	4.03	2
	%	1.37%	1.37%	17.81%	20.55%	39.73%		
ASME	n	2	2	10	26	22	4.03	
	%	1.37%	1.37%	6.85%	17.81%	15.07%		
ACM DL	n	4	2	8	40	24	4.00	3
	%	2.74%	1.37%	5.48%	27.40%	16.44%		
ASCE	n	4	2	10	22	20	3.90	4
	%	2.74%	1.37%	6.85%	15.07%	13.70%		
Nature	n	2	6	14	22	20	3.81	5
	%	1.37%	4.11%	9.59%	15.07%	13.70%		
OUP	n	2	10	20	22	24	3.72	6
	%	1.37%	6.85%	13.70%	15.07%	16.44%		
AIP	n	4	8	8	24	16	3.67	7
	%	2.74%	5.48%	5.48%	16.44%	10.96%		
APS	n	4	6	6	26	12	3.67	
	%	2.74%	4.11%	4.11%	17.81%	8.22%		
Eco & Political Weekly	n	2	6	10	22	8	3.58	8
	%	1.37%	4.11%	6.85%	15.07%	5.48%		
J Stor	n	0	14	18	20	14	3.52	9
	%	0.00%	9.59%	12.33%	13.70%	9.59%		
ISID	n	6	6	6	16	10	3.41	10
	%	4.11%	4.11%	4.11%	10.96%	6.85%		
J Gate Plus	n	4	10	12	16	12	3.41	
	%	2.74%	6.85%	8.22%	10.96%	8.22%		

Table 9: Rating of E-Resources

that the e-resources are extremely useful (Figure 6). Here, attempts are being made to rate the various eresources available under E-ShodhSindhu Consortium. E-resources are ranked and tabulated below based on the rating by researchers.

From the study, it is obvious that all available e-resources are very useful to researchers, because all have mean score rating of above 3, and four e-resources are extremely useful. Among the e-resources available from E-ShodhSindhu, most useful e-resources according to the mean score rating are Web of Science (4.21), Springer Link and ASME (4.03), ACM Digital Library (4.00), which is followed ASCE (3.90), Nature (3.81) and so on.

Rating of E-Resources under Subscription

This research is carried out in order to rate the eresources that Nalanda Digital Library subscribes to.

E-Resources		Not at all Useful	Slightly Useful	Moderately Useful	Very Useful	Extremely Useful	Mean	Rank
Science Direct	n	0	2	8	32	76	4.54	1
	%	0.00%	1.37%	5.48%	21.92%	52.05%		
Elsevier	n	2	0	14	32	66	4.40	2
	%	1.37%	0.00%	9.59%	21.92%	45.21%		
IEEE Xplore	n	4	2	8	22	56	4.35	3
	%	2.74%	1.37%	5.48%	15.07%	38.36%		
Scopus	n	0	4	12	36	58	4.35	
	%	0.00%	2.74%	8.22%	24.66%	39.73%		
Wiley Online Library	n	0	2	14	40	56	4.34	4
	%	0.00%	1.37%	9.59%	27.40%	38.36%		
Springer Nature	n	2	0	16	28	40	4.21	5
	%	1.37%	0.00%	10.96%	19.18%	27.40%		
ACS	n	0	6	12	24	22	3.97	6
	%	0.00%	4.11%	8.22%	16.44%	15.07%		
BIS	n	4	4	14	16	26	3.88	7
	%	2.74%	2.74%	9.59%	10.96%	17.81%		
Emerald	n	4	0	14	24	16	3.83	8
	%	2.74%	0.00%	9.59%	16.44%	10.96%		
ASTM	n	2	0	22	16	16	3.79	9
	%	1.37%	0.00%	15.07%	10.96%	10.96%		
Royal Society of Chemistry	n	4	4	10	18	18	3.78	10
	%	2.74%	2.74%	6.85%	12.33%	12.33%		
Others	n	4	2	10	16	12	3.68	11
	%	2.74%	1.37%	6.85%	10.96%	8.22%		
MathSciNet	n	4	2	18	14	16	3.67	12
	%	2.74%	1.37%	12.33%	9.59%	10.96%		
SAGE	n	2	10	14	28	16	3.66	13
	%	1.37%	6.85%	9.59%	19.18%	10.96%		

Table 10: Rating of E-Resources

E-resources are ranked and tabulated below, based on the respondents ranking in Table 10.

It is noticeable from the mean score that all e-resources subscribed to the library are very useful for researchers and the top rated six e-resources are extremely useful. Science Direct (4.54), Elsevier (4.40), IEEE Xplore and Scopus (4.35), Wiley Online Library (4.34), Springer Nature (4.21) are the top six highly useful e-resources among e-resources subscribed. And the other useful eresources are ranked as given in the table.

Method of Determining Relevance of Information from E-Resources

Today the significance of a piece of information is hard to assess. A review is performed here to decide how researchers examine the relevance of information available from the digital library. Multiple responses are allowed in Table 11.

Table 11: Determining Relevance of Information

Method of Determining Relevance	Number of Respondents	Percentage*
Authority	108	73.97
Content	78	53.42
Up-to-dateness	36	24.66
Citation/Reference	64	43.84

*Multiple Response

The study shows that most respondents (73.97%) are determining the relevance of information depending on the authority of information, followed by analysing the content of information (53.42%), analysing the citations/ references (43.84%) and up-to-dateness of information (24.66%).

Digital Library Impact in Research

Information from digital libraries affects a research scholars' research process as he receives the latest developments in the subject matter of interest to him through digital library resources within a timeframe. An attempt is being made here to examine how the e-



Figure 10: Influence of Digital Library Resources in Research

resources available in the Nalanda Digital Library influence researchers.

The study from the Figure 10 indicates that the digital library information is extremely influential for most of the researchers (53.42%), followed by 31.51 percent of researchers very influential, 12.33 percent of researchers moderately influential and a comparatively smaller percentage of researchers; i.e., 1.37 percent slightly influential and the same percentage not at all influential.

Digital Library Resources: Satisfaction Level

Figure 11 shows the researchers' satisfaction with eresources available in the Nalanda digital library.



Figure 11: Satisfaction Level with Nalanda Digital Library Resources

The figure clearly indicates that nearly half of the respondents (49.32%) are pleased with the digital library's available e-resources, while 30.14% state they are not satisfied or dissatisfied with a neutral opinion. 10.96 per cent of respondents are very satisfied with the e-resources available.

Digital Library Resources Rating

Resources in the digital library include different forms such as e-books, e-journals, e-databases, etc. Table 12 displays the ranking of different digital library resources concerning the level of research scholars' satisfaction.

The findings indicate that the respondents are pleased with all e-resources of digital library with the mean score rating above 3. Based on the ranking, it is found that students are satisfied with e-journals (3.68), e-books (3.49), e-databases (3.45) and other resources (3.30). All e-resources are highly significant for the digital library from the one sample t test, because the significant values are below 0.05.

Problems in Confronting access to Digital Library Resources

Various problems may arise in the time of accessing digital resources from a digital library. An attempt is made here to examine researchers' problems using digital libraries.

Table 12. Digital Library Resources Rating
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Problems Faced	Number of Respondents	Percen- tage*
No off-campus access allowed	66	45.21
Retrieval of unwanted information	36	24.66
Lack of guidance and training	30	20.55
Lack of knowledge in searching	26	17.81
Lack of knowledge in using and handing computer	2	1.37

Table 13: Problems Confronting while accessing E-Resources

*Multiple Response

Most respondents (45.21%) say the main challenge they face is that digital library services are not allowed offcampus access. Many issues include accessing unwanted information (24.66%), lack of guidance and training (20.55%), lack of search formulation knowledge (17.81%), etc.

Training Needs for Researchers

Training is important to every person to do any activity. Likewise, if a researcher wants to use the digital library resources for his/her research activities, he/she must be trained for using it. So, here researchers had suggested their training needs in Table 14.

More users suggest that library orientation along with e-resources training (52.05%) will help them to acquaint themselves with e-resources. Also, providing handbooks and guides (31.51%), assistance by technical staff

Digital Librar Resources	У	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied	Mean	S.D.	Т	P Value
E-books	n	6	8	54	50	18	3.49	0.951	5.954	0.000*
	%	4.11%	5.48%	36.99%	34.25%	12.33%				
E-journals	n	4	14	32	60	28	3.68	1.004	7.974	0.000*
	%	2.74%	9.59%	21.92%	41.10%	19.18%				
E-databases	n	4	14	48	48	16	3.45	0.949	5.362	0.000*
	%	2.74%	9.59%	32.88%	32.88%	10.96%				
Others	n	6	4	42	30	6	3.30	0.924	2.999	0.004*
	%	4.11%	2.74%	28.77%	20.55%	4.11%	1			

*: Significant (<0.05); Not significant (>0.05)

n-No. of Respondents; %- Percentage of Respondents

Training Needs	Number of Respondents	Percen- tage*
Technical Staff should always be there to assist users	36	24.66
Library orientation along with e-resource training	76	52.05
Provide Handbooks and guides	46	31.51
Others/Online Support	2	1.37

Table 14: Training Needs for Researchers

*Multiple Response

(24.66%), online support (1.37%) will also help them to become more familiar with making use of digital library resources.

SUGGESTIONS

Based on the findings from analysis and respondents' opinions, the following suggestions are made:

- The library orientation is required at regular intervals to explore the use of digital library resources.
- Library should provide handbooks and guides to researchers to explore digital library resources and cope up with modern technology.
- Library should subscribe to more e-journals for researchers, because the latest information within a span of time is only possible through e-journals.

CONCLUSION

Research is the cycle of routine generation of new knowledge. Therefore, researchers need updated information in their work to avoid wasting time, effort and money. Previously, libraries served as a repository of information, but today the information is growing substantially. This is why libraries need a similar facility to access the latest information into the hands of the needy. Digital library services enable libraries to do such services. Therefore, this study aims to analyze how researchers at NIT Calicut use their digital library (Nalanda Digital Library) as a learning hub for their research works. The study results indicated that the

researchers are moderately familiar with the digital library resources, and e-journals are the e-resources that are mostly used. Such digital library resources are also extremely useful to their work and most prefer portable document files (pdf) format for downloading information. More than half of respondents opined that these digital resources had a significant effect on their research work and most respondents were satisfied with the services of the digital library. Web of Science, Springer Link, Science Direct, Elsevier and IEEE Explore are the top useful e-resources in Nalanda digital library. On the basis of these results, it can be concluded that the Nalanda Digital Library's digital library resources play an important role in the research progress of NIT Calicut research scholars and the researchers are using these tools to advance research and improve their knowledge.

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