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Contribution of National Digital Library of India on the paradigm shift in research and education:

A study based on the Central University Kerala

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Abstract

Libraries have seen a significant transformation in terms of both resources and services in the 21st century. The emergence and widespread use of digital repositories and digital libraries is an important step in this regard. The Ministry of Education set up the National Digital Library of India (NDLI) for the benefit of Indian academics. In order to better understand how well students and researchers at the Central University of Kerala are aware of the digital resources offered by the NDLI, as well as how they utilize such resources and services, this study will look at both of these factors. This study applied simple random sampling procedures to randomly choose a sample of students and scholars, and then they used online closed questionnaires to collect data from them. The current study explored the state art of NDLI among the Central University Kerala users and found the NDLI's resources and services are not fully exploited, despite the fact that the majority of students are aware of them. Many of the respondents are still ignorant of the NDLI's instruments and have not used the services, which are crucial to their research and academic work. The university library must take the lead step by organizing orientation and awareness programmes.

Keywords: National Digital Library of India, NDLI, Central University of Kerala

Introduction

In the modern day, information may be searched for and located via the use of a gateway called a web portal. The portal is a crucial hub for connecting people to the content they need and is a trustworthy source of information. The opportunities provided by digital libraries and portals have not yet, however, been completely used by the learner community as a whole. Students still need to visit a variety of websites to get electronic resources. Additionally, they must become adept in retrieval and search techniques independently; otherwise, they will have to manually go through a large number of search results, which is tiresome and time-consuming. Despite the fact that the necessary technological resource is readily accessible, students often choose not to utilize it during this process. The absence of learner-to-learner, teacher-to-teacher, and teacher-learner integration within the learning environment also prevents collaborative learning, a highly effective learning style that benefits immensely from digital technology. Only a small percentage of the potential provided by technical developments have been used so far in order to promote education and research; they have not been completely explored. The National Digital Library is crucial in guaranteeing that students and researchers have access to all the material they need without having to physically go to a library when it comes to solutions like Pandemic, which fulfils the logical end of the digital library system.

The National Digital Library of India (NDL India) is a part of a Comprehensive Mission on Education through Information and Communication Technology (NMEICT). It is an initiative of the Ministry of Human Resource Development (MHRD), which is currently known as the Ministry of Education (MoE). It facilitates access to a range of educational materials, including those that are offered in digital format, and was developed by the Indian Institute of Technology (IIT), Kharagpur. The purpose of this article is to determine how well-informed Central University of Kerala students and researchers are about the digital materials held by the National Digital Library of India, as well as how much they use the digital materials and services provided by the library. The authors also provide a rundown of NDL's capabilities as a repository for online learning e-resources. It provides many user groups with access to a single window's worth of search functionality and outlines the procedures for allowing access to electronic data.

Review of Literature

A study was carried out in 2021 to find out more about user opinions of the National Digital Library of India (NDLI) mobile app. For this, sentiment analysis methodology was used. It has 11,861 reviews with an average rating of 3.64/5. The NDLI mobile app earned 6 positive and 22 negative assessments on iOS, and 2130 positive and 1808 negative evaluations on Android, according to the poll. A 66 percent sentiment score was found to be the average. This research is significant because it offers information on how users behave while using applications on various platforms (Android vs. iOS), as well as data that can be used by app developers to measure use and enhance features for user satisfaction. The results indicate that stakeholders and developers should put more effort into improving the app's usability¹.

In the same year, 2021, a different study was conducted to investigate India's present research and development trends in the area of digital libraries. The paper focuses on the key characteristics of the newest generation of digital libraries. The report made several recommendations for India's digital library systems. Workforce education, multilevel contact movements, national knowledge resources, Central Digital Knowledge, etc. are some of the recommendations². The author suggested that collaboration between researchers, academics, and students is essential for this movement to succeed in becoming one of the knowledge economy's most potent driving forces. There is indeed a National Digital Library for all Indians.

A survey was undertaken to learn more about NDLI usage and awareness among Central University of Tamil Nadu students. Despite the fact that the majority of students are aware of the NDLI, the survey found that its resources and services are not being used to their full potential. Many of the respondents are still unaware of the NDLI's tools and services, and they haven't taken use of those that are crucial for their research and study. The university library must take the lead by organizing orientation events and awareness campaigns³. However, another study explored the gray literature coverage in NDL India with particular reference to synopsis, theses, reports and patents⁴. From the study in 2019, an overview of the features of NDLI as a virtual repository of learning resources with a single-window search facility for different categories of users⁵.

The long-term preservation of a byte stream sufficient to replicate the document and give continuing access to the contents over time and through growing computer technology is known as digital preservation. Digital Library of India (DLI) is a digital collection of freely available rare books and manuscripts collected from various libraries in India of various states⁶. NDLI currently provides web access to 550583 digital rare books to users all over the world. Thousands of rare books and manuscripts, however, remain undigitized in Indian libraries. To attain its goal of maximum digitization of Indian heritage and historical records, DLI needs to reach out to every corner of the country. In order to encourage open access resources (OARs) in the middle of the worldwide pandemic, the National Digital Library of

India (NDLI) has collected a wide range of electronic resources and materials. “Out of all the resources, an attempt has been made to focus on COVID-19 research repository preserved at NDLI platform to support connected research activities for envisaging experiments by scientists and researchers”⁷.

Objectives

The purpose of this research is to determine the extent to which students at Central University of Kerala are aware with the National Digital Library of India (NDLI) and how extend they are familiar with its resources.

- a) To study the demographic profiles of the users of NDLI in Central University of Kerala
- b) To determine the amount of knowledge regarding NDLI resources.
- c) To measure the frequency of NDLI usage.
- d) To learn about users' preferences for NDLI resource access.
- e) To determine the extent to which students use the NDL.
- f) To see whether there are any limitations to using the NDLI.
- g) To assess the function of libraries in relation to NDLI use and awareness among students.

Methodology

The contents, resources and services offered by the National Digital Library of India portal for the research community have been thoroughly investigated. The necessary data for the research was gathered from university students throughout the month of May 2022 using an online questionnaire approach. The Central University of Kerala now contains 30 departments for both teaching and research. For this study, a sample of a representative number of university students and researchers was collected. There are now 2312 students and researchers registered at the school. In response to the online survey, which was made using Google Forms and distributed to all students and research scholars, it was discovered that 10% of students and research researchers took part in the study. Among the responders, 131 (57%) from female, 42 (50%) from male, and 2 (1%) from transgender category. Microsoft Excel and SOFA (Statistics Open For All) tools were used to analyse the data. The information that was gathered was given in the analysis section, where it was further examined and evaluated in order to meet the goals. Table.1 shows the gender statistics of the study

Table.1 Gender wise statistics

Variable	Level	Counts	Percentage
Gender	Female	131	56.7 %
	Male	98	42.4 %
	Transgender	2	0.90 %

The National Digital Library India

The emergence of electronic resources has drastically revamped the status of all the libraries and information canters across the world during the last decade. NDL India is one of the largest digital library initiatives in India having 82,552,105 collections. Educational materials are offered at all levels, from elementary to postgraduate. All subject areas, such as technology, social science, literature, law, and medicine, have educational materials available. Books, audio books/lectures, video lectures, lecture presentations/notes, simulations, question papers, solutions, and other resources are all available. There is a significant volume of educational resources available, written by a wide variety of authors. All languages' content is available. The user interface is available in a number of widely spoken Indian languages. The library incorporates content from a vast number of Indian educational and research institutes' institutional digital repositories⁸.

The National Digital Library of India (NDL India) pilot project was launched by the Ministry of Human Resource Development (MHRD) as part of its National Mission on Education through Information and Communication Technology (NMEICT) to develop a framework for a virtual repository of learning resources with a single-window search facility⁹. Filtered and federated searching are used to help learners discover the proper resource with the least amount of effort and in the shortest amount of time. NDL India is built to hold material in any language and has interface support for the most popular Indian languages. It will cater to all academic levels, including researchers and lifelong learners, as well as all fields, popular access devices, and differently abled learners. It is being developed to aid students in their preparation for entrance and competitive examinations, to allow people to learn and study from best practices from around the world, and to make it easier for researchers to conduct interconnected research from many sources. The pilot project is developing a framework that will be scaled up in terms of material volume and diversity to accommodate learners of all levels and disciplines. The Indian Institute of Technology at Kharagpur is working on it.

Analysis

The analysis part of the study deals with the interpretation of data collected. Different variables such as gender, school/department, awareness of NDLI, use of NDLI, problems of NDLI access, etc. are taken into account for analysis and interpretation of data. The study is mainly focused on the use and impact of NDLI among the students in the Central University of Kerala. The analysis is made with the help of statistical package SOFA (Statistical Open For All) and Microsoft Excel and the results obtained were interpreted statistically. The analysis is presented under the headings based on the items presented in the questionnaire.

Demographic Analysis

The following table.2 showing the demographic analysis of the current study. Highest rate of respondent belonging to the age group between 20-25 with a total of 73.59%. 181 respondent o the study from the rural area. The Central University of Kerala is one the university having the third gender in the student community. The transgender also showed interest in the participation of the study. It is also clear that there is no evidence of the below 20 age group people who are from urban area were participated in the study.

Table.2 Demographic details of the study

Place of permanent residence		Age group which you belong				Total
		Below 20	Between 20-25	Between 26-30	Above 30	
Rural	Female	0	79	8	11	98
	Male	3	52	21	6	82
	Transgender	0	1	0	0	1
	Total	3	132	29	17	181
Urban	Female	0	25	8	0	33
	Male	0	12	2	2	16
	Transgender	0	1	0	0	1
	Total	0	38	10	2	50
Total	Female	0	104	16	11	131
	Male	3	64	23	8	98
	Transgender	0	2	0	0	2
	Total	3 (1.29 %)	170 (73.59 %)	39 (16.83 %)	19 (8.22 %)	231 (100 %)

The study also identified the respondents' zonal area of India who belonging to. Since, The Central University of Kerala is situated in the south zone, most of the respondent are from the same zone with 84.48% which include Andhra Pradesh, Karnataka, Kerala, Tamil Nadu and Telangana. Followed by East Zone (Assam, Bihar, Odisha, and West Bengal) with 8.62%. The following figure.1 shows the details.

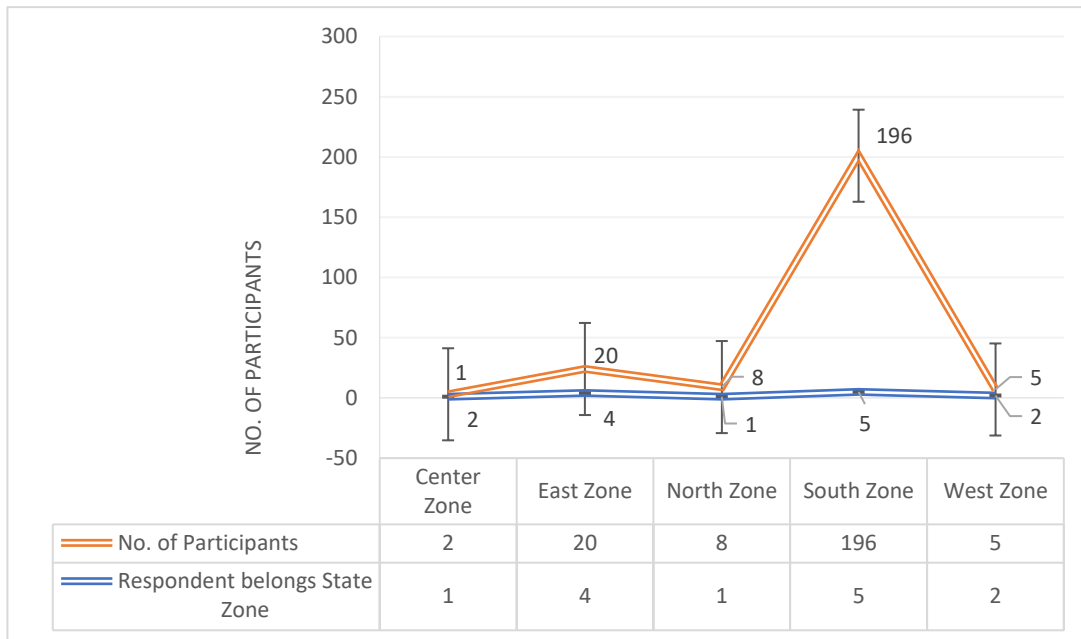


Fig.1. Zonal wise distribution of participants

Awareness & Knowledge of NDLI

The table.3 shows the feedback on the knowledge of India's National Digital Library (NDLI) was asked in the first phase of this study (Table.3), 83.55% (193) of the respondents were aware of the NDLI project and others 16.45% indicated their ignorance about it (Table.1). In the table it is evident that 82 (35.49 %) of highest respondent who belonging to the age group between 20-25 from the female category. Whereas male (54 respondent) percentage is 23.37% in the same age group. Female respondents showing high response rate regarding the awareness and knowledge of NDLI.

Table.3. Awareness & Knowledge of NDLI

		Awareness & Knowledge of NDLI		
Gender	Age group which you belong	No	Yes	Total
Female	Below 20	0	0	0
	Between 20-25	22	82	104
	Between 26-30	2	14	16
	Above 30	0	11	11
	Total	24	107	131
Male	Below 20	0	3	3
	Between 20-25	10	54	64
	Between 26-30	0	23	23
	Above 30	3	5	8
	Total	13	85	98
Transgender	Below 20	0	0	0

	Between 20-25	1	1	2
	Between 26-30	0	0	0
	Above 30	0	0	0
Total	Total	1	1	2
	Below 20	0	3	3
	Between 20-25	33	137	170
	Between 26-30	2	37	39
	Above 30	3	16	19
	Total	38 (16.45 %)	193 (83.55 %)	231

Academic Programme wise distribution of data

The Central University of Kerala offer Graduation, Post Graduate, Post Graduate Diploma, Master of Philosophy and Doctor of Philosophy. The data collected from the online questionnaire shows only Doctor of Philosophy and Post Graduate students were contributed in our study.

Table.4. Academic Programme wise distribution of data

		Age group which you belong				
Academic Programme	Gender	Below 20	Between 20-25	Between 26-30	Above 30	Total
Doctor of Philosophy	Female	0	4	12	11	27
	Male	0	0	17	8	25
	Transgender	0	0	0	0	0
	Total	0	4	29	19	52
Post Graduate	Female	0	100	4	0	104
	Male	3	64	5	0	72
	Transgender	0	2	0	0	2
	Total	3	166	9	0	178
Total	Female	0	104	16	11	131
	Male	3	64	23	8	98
	Transgender	0	2	0	0	2
	Total	3	170	39	19	231

NDLI User Account

When respondents were asked to indicate the account details of NDL, it is observed that only 28.13% (65) of the respondents have an account in NDLI portal NDL (Table.5) and 71.86% (166) do not have an account with the NDLI, according to the results. From the table, among the age group above 30 out of 19 respondent only 4 respondent indicate that they registered in the NDLI and have user account. The analysis shows most of the user community not aware of the benefits of having an account in the NDLI personally.

Table.5. NDLI user account statistics

		Age group which you belong				
Gender	Observation regarding NDLI user Account?	Below 20	Between 20-25	Between 26-30	Above 30	Total
Female	No	0	80	10	9	99
	Yes	0	24	6	2	32
	Total	0	104	16	11	131

Male	No	3	41	15	6	65
	Yes	0	23	8	2	33
	Total	3	64	23	8	98
Transgender	No	0	2	0	0	2
	Yes	0	0	0	0	0
	Total	0	2	0	0	2
Total	No	3	123	25	15	166
	Yes	0	47	14	4	65
	Total	3	170	39	19	231

Frequency of NDL Access

In response to the question how frequently do the respondents use NDL, more than 34.20% (79 respondents) of the respondents have mentioned that they access NDLI weekly at once. Followed by 28.57% (66 respondents) indicated that they use NDLI resources monthly at once. The main findings of the study is that out of 231 participants, 30.74% (71 respondents) are expressed that they access NDLI resources rarely or never. (Figure.3).

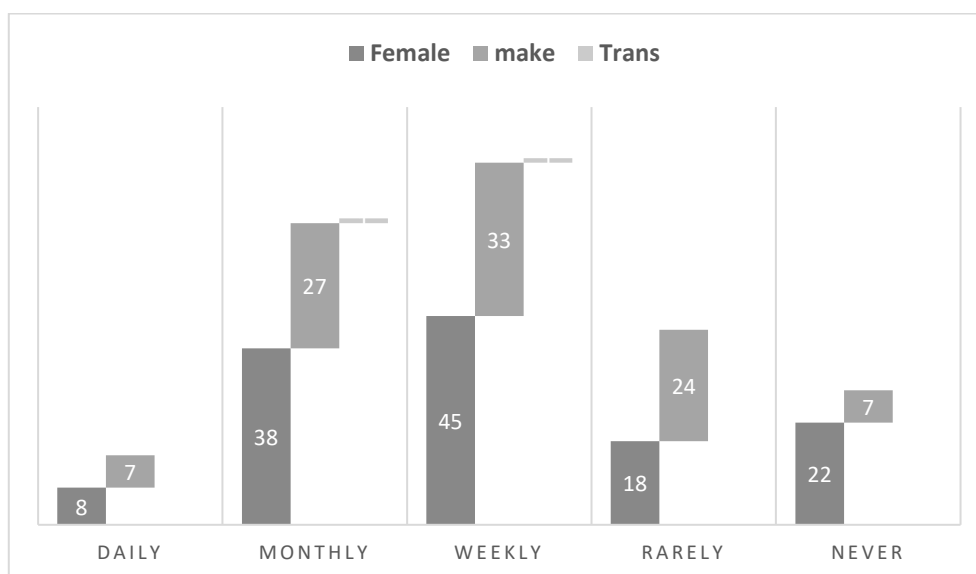


Fig. 3 Frequency of NDL usage

Preference of Resource Type

The digital content in NDL India consists of e-books, e-journals, audio-books, lecture materials, theses, articles, journals, question papers and their solutions, simulation tools and video lectures in all subject areas. In a multiple answer question, respondents were asked to indicate preference towards each category of resource. The results are given in figure.4. It is indicated that users of CUK prefer to access e-books and e-articles from NDL India which shows 54.55% and 52.81% for Books and Articles respectively. Followed by Study materials preferred by 44.16 % of respondents, and between 23-25% prefer question paper, thesis and Audio/video lectures form.

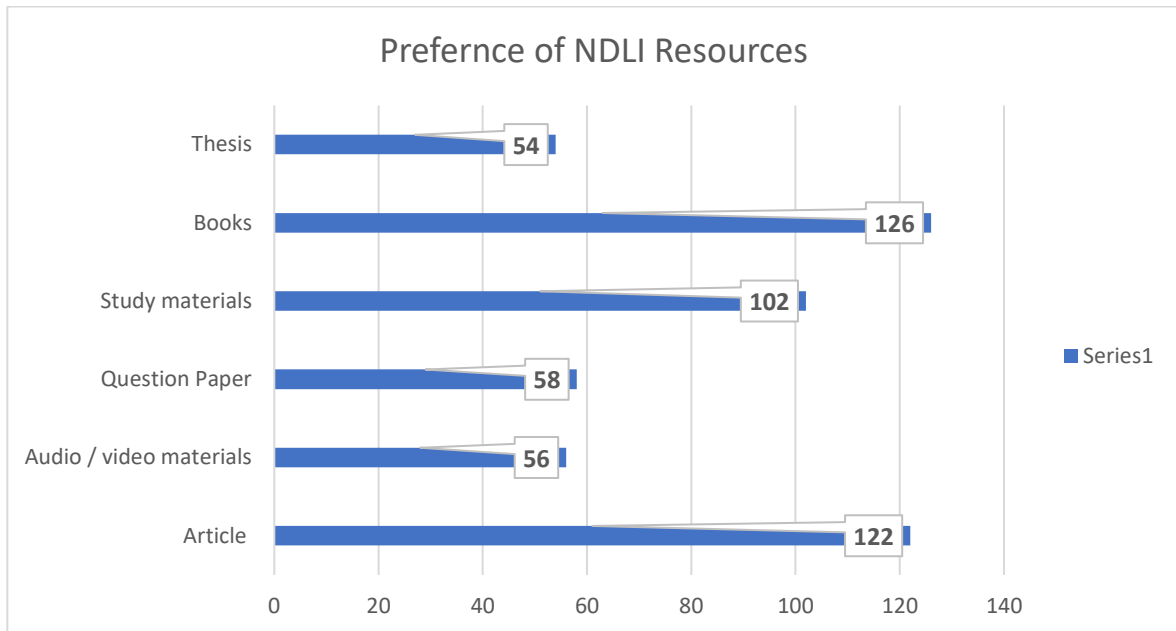


Fig. 4: Preference of Resource Type

Problems faced while accessing NDLI

Figure.5 below shows the problems / difficulties faced while accessing NDLI, among the respondents downloading access error (31%) and network problems (29%) indicated highest response. Searching problems, Registering error and Captcha error problems are also expressed in the study with 16%, 11% and 6% respectively.

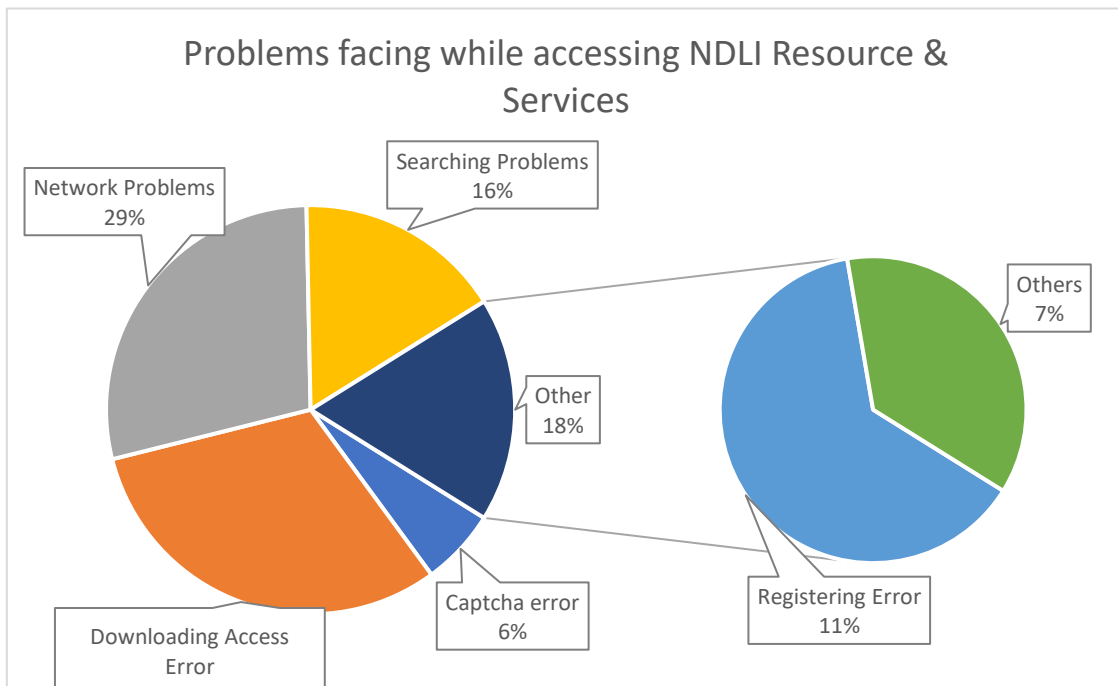


Fig. 5: Problems faced while accessing NDLI

Response rate regarding the NDLI unavailable resources access

A multiple answer question was asked to know whether the respondent contacted the library if the required resource was not available in the NDLI. Figure.6 the no. of response shows assumption is right with 76.19% of response i.e., 176 respondents agreed that they will approach library if the resources not accessible through NDLI. With highest respond of

88.31% indicate that they search other internet resources for their information requirements. Borrowing E-resources personally from others also represent with high response rate with 76.19%.

Table.6. Response rate regarding the NDLI unavailable resources access

RESPONSE	NO. OF RESPONSE	PERCENTAGE OF RESPONSE	RANKING
SEARCHING OTHER INTERNET RESOURCES	204	88.31	1
CONSULT WITH LIBRARY	176	76.19	2
BORROWING ERESOURCES PERSONLLY FROM OTHERS	163	70.56	3
PURCHASE	36	15.58	4
REQUESTING OTHER	28	12.12	5

Satisfaction level of users of NDLI

The paper also tried to study the overall satisfaction level of users in relating to the NDLI resources access and services. 64.07% of the respondents were satisfied with the current resources available in the NDLI whereas 35.93% of the respondents were not satisfied. This satisfaction level of the user depicts the NDLI portal need to update with more resources and services without any difficulties. (Figure.7)

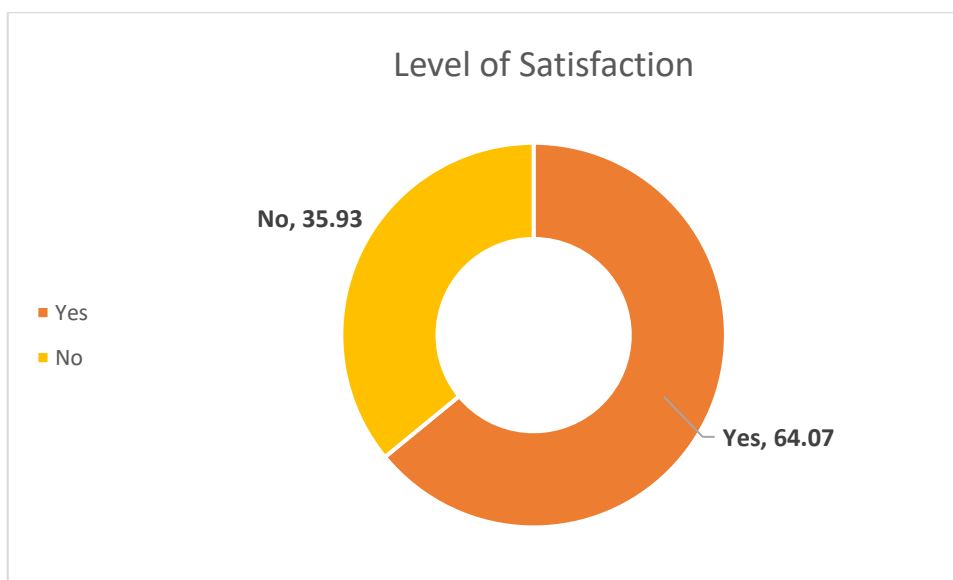


Fig. 7: Satisfaction level of users of NDLI

Need for Training

A question was asked to know whether the required training session to more about NDLI. From Figure it is evident that 81.73% of the respondent indicated that need of training programme to know more about the resources and services of NDLI, and 18.26% of respondents expressed dissent on training programme. Highest response from the School of Physical Science and followed by School of Language and Comparative Literature with a number of 74 and 43 respectively.

School of	Would you prefer training about the use of NDLI?		Total
	No	Yes	
School of Biological Sciences	0	14	14
School of Earth Science Systems	0	9	9
School of Economics	4	19	23

School of Education	0	14	14
School of Global Studies	6	9	15
School of Languages and Comparative Literatures	8	43	51
School of Legal Studies	0	7	7
School of Physical Sciences	10	74	84
School of Social Sciences	1	13	14
Total	29	202	231

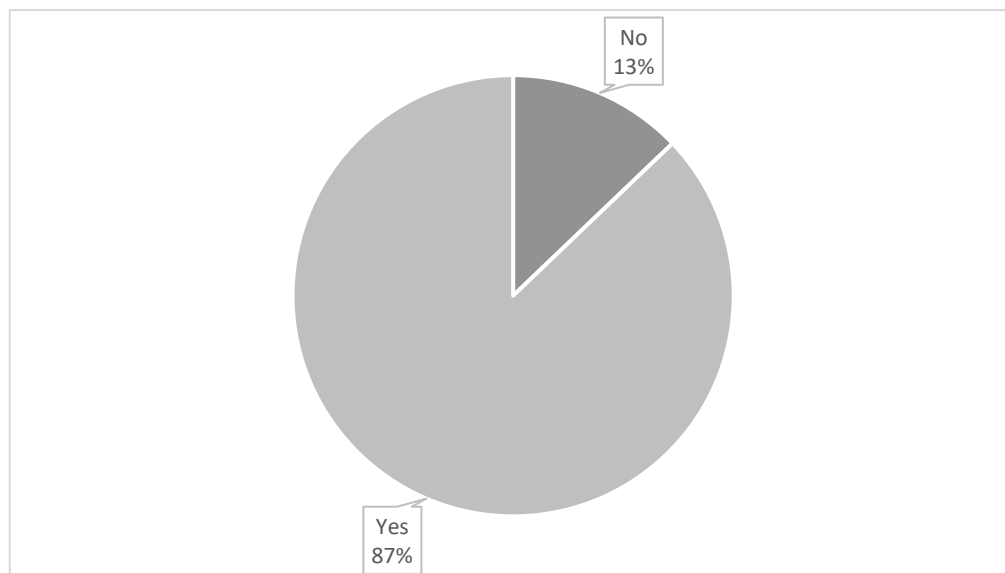


Figure 6: Need for NDL Training Programme

Summary of finding

The following are the major findings of the study.

- The majority of respondent of 83.55 percent (193) of the respondents, were aware of the NDLI project, while the remaining 16.45 percent of respondents stated they were unaware of it. It is observed that only 29% (67) of the respondents have an account in NDLI portal NDLI and 71% (162) do not have an account with the NDLI, according to the results.
- Based on questionnaires, it was discovered that 79 respondents, or 34.20 percent, reported they frequented NDLI weekly. Furthermore 28.57 percent (66 respondents) indicated they access NDLI materials on a monthly basis. The study's key conclusion is that out of 231 participants, 30.74 percent (or 71 respondents) revealed that they only seldom or never use NDLI resources.
- According to statistics from the study, which shows 54.55 percent and 52.81 percent CU Kerala users prefer to access e-books and e-articles from NDL India. 44.16 percent of respondents answered they preferred study materials, while between 23 and 25 percent specified they preferred question papers, theses, and audio/video lectures.
- In response with issues facing to access NDLI, Network issues (29 percent) and downloading access errors (31 percent) received the largest percentage of responses from the respondents. In the research, challenges with searching, registering, and captcha are also stated with 16 percent, 11 percent, and 6 percent, respectively.
- The research is being done with the assumption that CU Kerala users would go to the library if any materials are needed that are not offered by the NDLI. The results demonstrate that the hypothesis is correct, with 176 respondents agreeing, or 76.19 percent of responses, that they will contact the library if the materials are not available

via NDLI. The majority of respondents (88.31%) said they use other online sites to get the information they need.

- The general degree of user satisfaction with regard to NDLI resource access and services showed 35.93% of respondents were dissatisfied with the resources currently offered by the NDLI, 64.07% of respondents were satisfied.
- The need for a training session to learn more about NDLI was questioned. It is clear from the results that 81.73 percent of respondents said they needed a training programme to learn more about the NDLI's resources and services, whereas 18.26 percent of respondents not demanding any training session for the same.

Conclusion

The present study could be repeated with a wider period and could be compared with other similar institutions. This study could also be compared with library usage statistics, in order to gain a more well- rounded view of National Digital Library of India's usage. On the basis of the study, further usage, awareness, satisfaction level, language preference, and other indicators can be studied to gain a clear understanding of the need and requirement of information seekers in the digital era. This information from the studies can be used as vital information in decision-making. Advances in information and communication technology, particularly the various applications of the internet and digital resources, have resulted in significant changes in the storage, retrieval, and communication of scholarly information. NDLI must be capable of creating a paradigm shift in India's education movement, including all stages of higher education in India. Ninety-four percent of respondents stated that they needed training. Others, on the other hand, believe they are competent enough to access a variety of resources, information, as well as teaching, learning, and research materials in NDLI. The use of the NDLI by students and research scientists at the Central University of Kerala is increasing, according to the report. Electronic resources are welcomed by the younger generation, yet knowledge of the diversity of digital resources covered by the NDLI and frequency of usage are determined to be much below the expected optimal level. It is vital for libraries to take the initiative in organizing orientation programmes and user education for the benefit of students.

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