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Role of Remote Access Solutions for Accessing Library Resources: A Panacea for Sustainable Access to Legal Databases During Pandemic

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Physical access to libraries and information centers was obstructed due to nationwide lockdown as an outcome of the spread of corona virus. In this scenario, libraries played a pivotal in extending reference and research services to its clientele through various mechanisms. Remote access to electronic resources is one of such mechanisms. The present study is an attempt to know diverse patterns of accessing electronic resources through remote access software during pandemic by users of a Law University based in India namely National Law University Delhi (NLUD). The study also aims to analyze the frequency of referred electronic resources during pandemic on various parameters such as most referred legal database, maximum number of downloads, maximum number of logins, content based logins and downloads for various legal databases from the perspective of different user categories. The data for the present study has been extracted from the remote access software namely RemoteXs subscribed by the university. The Study finds that post graduate students are the major users among different user categories accessing the electronic resources through remote access mechanisms during the lockdown period. The study also reveals that among various electronic resource categories, the most popular category were e-journals. Apart from this, most referred Indian legal database was Manupatra and JSTOR was the most popular International legal database.

Keywords: *Electronic Resources, Legal Databases, Remote Access, COVID 19, Law Library, Law University, NLUD*

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1 INTRODUCTION

The whole world is witnessing tough times during COVID 19 and education sector is no longer untouched. Teachers, students, academicians and researchers have been facing lots of trouble to continue their teaching and learning activities during the unprecedented times of global pandemic. Roy claimed that the blended mode of learning acted as a remedy to continue the flow of information and education. The pandemic set an opportunity for being treated as a portal between old and new world of libraries services delivered through traditional activities and remote access mechanisms respectively. This COVID 19 pandemic has thus been seen as a portal between the old and the new world, where seeds of socially just alternatives can be sown, which in this case is remote access to library services. The role of dissemination tools like electronic resources have established their significance during this global pandemic as it worked as a bridge between physical and online mode of learning. The remote access software is one such dissemination tool for electronic resources which enables users to access electronic resources virtually or without any physical barrier. Through remote access technologies the limitation of physical space can be defeated and library and information centers are playing apivotal role in bringing these technologies to end users¹.

Through such mechanism usage of electronic resources can be increased and users can be connected with the library 24 x7 as per their research requirements. Some examples of remote access software are RemoteXs, EZproxy, Refread, MyLoft, Remote Log etc. These remote access software came as a rescue for academic fraternity during worldwide pandemic as they empowered the academic community by facilitating access to the library e-resources without physical barriers. The transformation of library and information services has made it possible for acquiring more digital resources and making them accessible through remote access solutions² (Burke 2020).

In pre COVID period, the library and information centers facilitated the easy access of library resources in both the ways i.e. physically or virtually. However, in the COVID times, the education sector was worst affected along with other sectors. The libraries were closed and users were not able to visit the libraries and conduct their research and study.

The users especially researchers were in deep disconnection from the library environment and new researchers were also adding to the existing mass of researchers during the difficult period of pandemic. The libraries worldwide were in rush to reach-out to the researchers with physical barrier. There came the need of providing access to all available e-resources through remote access platform on a continuous basis and creating awareness among existing as well as fresh researchers to avail the new way of connecting to the library resources.

In this scenario, remote access mechanisms worked as rescue for

researchers and facilitated access to electronic resources and acted as connector between the users and the library. The uses of electronic resources have been drastically increased with the help of remote access solutions. The usability of electronic resources has been increased and fully utilized by the users of National Law University, Delhi with the remote access software during the lockdown period caused due to COVID 19 pandemic.

2 OBJECTIVES OF THE STUDY

The users of a Law University are basically law students, research scholars, law professionals and faculty members. They seek legal information resources in the form of case law resources, legislative and statutory resources, legal scholarship resources, international treaties resources etc. These are the specific information resources which cater to research requirements of law researchers. The present study primarily focused on the impact and pattern of these electronic resources which were accessed through remote access mechanisms by various users with special reference to the National Law University, Delhi during the full or partial lockdown in India. The main objectives of the study are summarized as below:

- i. To investigate about the accessing pattern of electronic legal information resources through remote access solutions by users of National Law University, Delhi during the lockdown period in India caused due to COVID 19 pandemic.
- ii. To explore and envisage the users' behavior towards quantum of mostly accessed legal information resources such as case law resources, legislative and statutory resources, legal scholarship resources, international treaties resources.
- iii. To investigate about the most prominent user category among other user categories (Post Graduate Students, Research Scholars and Faculty Members) by analyzing logins made to access electronic resources through remote access software.
- iv. To examine the maximum number of PDF downloads of electronic contents by the diversified user categories of National Law University, Delhi with the help of remote access software subscribed.
- v. To compare the content based logins and downloads made by users of National Law University, Delhi for various electronic resources categories such as e-books, ejournals, subject databases, case law databases and hybrid database etc during specific lockdown in India.
- vi. To investigate about the most prominent database under specific electronic resources categories such as e-books, e-journals, subject databases, case law databases and hybrid database etc by analyzing the unique sessions for a database.

- vii. To present a comparison between various Indian and International databases in terms of unique logins made by different user categories of the mentioned university.
- viii. To investigate about the most accessed and popular Indian or International legal database
- ix. To analyze about the top five law database under overall e-resource categories by scheming most number of downloads.

3 SCOPE OF THE STUDY

The scope of the present study is limited to the library users of National Law University, Delhi. The user categories which are covered for the present study are post graduate students, research scholars and faculty members of NLUD. Post graduate student user category comprises LL.M students. Research scholar user category includes Ph.D. scholars and Faculty user category covers Professor, Associate Professors, and Assistant Professors.

For assessing the usage patterns of e-resources remotely by users of National Law University, Delhi, a cut-off period of April 2020 to October 2021 has been taken. This period indicates full or partial lockdown arrangement on PAN-India basis caused by the pandemic.

4 BRIEF PROFILE OF NATIONAL LAW UNIVERSITY, DELHI

National Law University Delhi came into existence in 2008 through National Law University Act 1 of 2008 with the primary intent to impart wide-ranging legal education and to foster ethical values among students. The university also strives to play a pivotal role in nation development through dissemination of legal knowledge and information. The University runs B.A.LL.B, LL.M., Ph.D programme (Law) and various PG Diploma & Online Certificate Courses. The university library has been renamed as Justice TPS Chawla Library. In order to meet its objective Justice TPS Chawla Library provides a wealth of resources and service to its clientele.

5 RESEARCH METHODOLOGY

The prime focus of this study has been to investigate the research trends of accessing electronic resources by NLUD users through remote access platform during COVID 19. The user categories undertaken for this study are post graduate students, research scholars and faculty members. For assessing the usage trends and patterns of accessing e-resources, the data has been extracted from the remote access software namely RemoteXs subscribed by the University. The data has been analyzed under various e-resources categories such as e-books, ejournals, case law databases, subject databases and hybrid

databases.

The collected data has been processed through 9 tables and 07 charts based on various parameters which include usage statistics through remote access software, number of logins and downloads in user categories; content based logins and downloads under various e-resources category. The analysis also envisages comparison of usage between national and international databases, ranking of databases under various e-resource categories and overall category.

6 REVIEW OF LITERATURE

The libraries and information centers are striving hard to reach out to their user during COVID 19. The pandemic has highly impacted universities and especially the library services were most affected. The problem was more chronic for the libraries that do not have remote access mechanism for their users as compared to those who were already providing library services through remote access solutions.

Francisco³ elaborated in a study that EBSCO Professional Services have been instrumental in providing its specialized services enabling the users to access the remotes access facilities through OpenAthens system in using the library resources remotely without any hindrance.

Dadhe and Dubey⁴ elaborated that the sudden outbreak of COVID 19 posed many challenges in front of library professionals to reach out to the users through different ways of delivering information and services. Remote access technologies became a savior in these times and pave the way to provide library services through digital platforms.

Pokorna⁵ stated that a digital library model with an aim to replace the traditional library services in the light of lockdown period due to current pandemic has attracted the attention of stakeholders. A proper authentication system through remote access is a viable medium for accessing information resources even the copyright protected works.

Panda et.al⁶, claimed that the worldwide crisis of COVID 19 has increased the visibility of remote access portals for enhancing the outreach of library electronic resources to end users

Zhou⁷ emphasized that learners welcome the distance learning programme remotely more accessible as compared to traditional classroom learning.

Decker⁸ stated that the existing library services required to be given proper consideration in light of user experience in post-pandemic era. COVID 19 pandemic has opened opportunities for service enhancement based on future reopening of library and information centers.

Biswal and Jana⁹ recommended that digital and electronic resources of library should be made available to the users through various mechanisms such as remote access solutions, IP authentications or other login and password

based access. COVID 19 appropriate protocol should be followed while reopening of the libraries and librarians should widely circulate the same in their community.

Sukula and Babbar¹⁰ said that the access to digital resources and services has been possible because of the advancement in education and library related technology.

Mehta and Wang¹¹ in their stated that adapting existing library services to a digital format and expanding the same to users and research fraternity became the mantra of the library during the COVID 19 period .

Ayeni et.al¹² manifests that the libraries have been playing vital role in connecting with their patron in tough times of COVID 19 pandemic and adopting numerous ways such as acquisition of more electronic resources and making them accessible through remote access mechanisms.

To provide cutting edge services to its clientele, the libraries need a strong support system from governmental agencies.

Sawant¹³ mentioned in a study that the libraries were in continuous contact with their users through remote access services and prepared digital guides and compiled e –content to serve their clientele during the pandemic period.

Walsh and Rana¹⁴ in their study explained that methods were adopted by University of Toronto Libraries’ in the changed library operations caused due to COVID 19 pandemic. To expand existing online and digital collections and to disseminate them through remote access tools, these two approaches were adopted by University of Toronto Libraries’ to reach out to the users.

Begum and Elahi¹⁵ in a study mentioned that during the COVID period, libraries shifted from physical and offline services to digital and online services through remote access facilities, federated search solutions and web based catalogues, etc. Diverse mechanisms for dissemination of online library services were adopted such as online document delivery, online information literacy training and reference services in virtual mode to reach out to the users.

Howes et.al¹⁶explains that the library professionals strived hard during the pandemic period through adapting new services models and provided relevant information resources and materials to the users of various library. The variant services included online video lectures, virtual classes; webinars etc were launched to meet the research requirements of users.

7 DATA ANALYSIS AND INTERPRETATION

7.1 USER STATISTICS THROUGH REMOTE ACCESS SOFTWARE

Table 1 showcases an analysis of usage statistics of different databases accessed through RemoteXs software (subscribed by NLUD) by different user categories such as post graduate students, research scholars and faculty members specifically during the lockdown period. The table exhibits that a total of 231

users have used the remote access facility out of which maximum users are post graduate students i.e.151.

Table 1: Usage statistics of databases

S.No.	User Category	Number of users	Percentage %
1.	Post Graduate Students	151	65
2.	Research Scholars	31	14
3.	Faculty Members	49	21

No. of Users

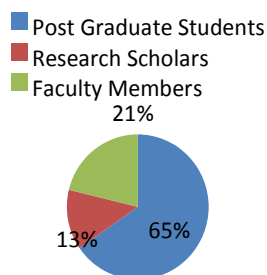


Chart 1: No. of users in different user categories

Chart 1 also reflects that, maximum numbers of Post graduate students (65%) have used the remote access facility and least number of users who have availed the remote access facilities are research scholars (14%). Around 21% faculty members have accessed the electronic resources through remote access facilities.

7.2 NUMBER OF LOGINS IN USER CATEGORIES

Table 2 is an expression of number of logins made remotely by respective user categories of National Law University, Delhi to access the subscribed electronic resources. It is evidentiary from the table 2 that post graduate students have actively searched for required knowledge from various databases regarding their research purposes as maximum number of logins (9778) have been made by them. Besides this, 4261 logins and 2634 logins were made by faculty members and research scholars respectively to access the e-resources through remote access software.

Table 2: Number of logins in user categories

S.No.	User Category	Number of logins	Percentage (%)
1.	Post Graduate Students	9778	58.64
2.	Research Scholars	2634	15.79
3.	Faculty Members	4261	25.55

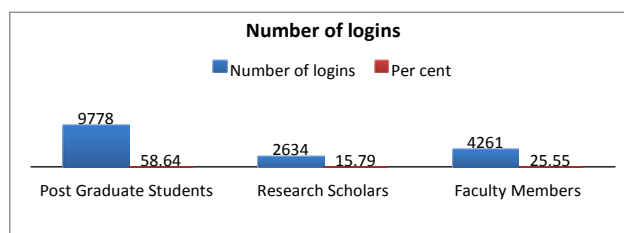


Chart 2: Number of logins in different user categories

Chart 2 shows that most prominent user category in terms of number of logins for accessing eresources is post graduate students with 58.64%. Research scholars have made 25.55% of logins. The lowest number of logins in user categories is research scholars with 15.79% logins. This analysis clearly reflects that the users have actively used the remote access facilities during the nationwide lockdown period indicating the paradigm shift from offline mode of learning to online learning.

7.3 NUMBER OF DOWNLOADS IN USER CATEGORIES

The users have accessed the required resources for their research purposes and simultaneous downloaded various documents to support their research. Table 3 shows that 17900 documents have been downloaded by mentioned three user categories. Here again post graduate students have made maximum number of downloads i.e. 11388 (63.62%) which is highest in user categories. 3559 (19.88%) downloads have been made by research scholars and least number of downloads have been made by faculty members 2953 (16.49%).

Table 3: Number of downloads in user categories

S.No.	User Category	Total Downloads	Percentage (%)
1.	Post Graduate Students	11388	63.62
2.	Research Scholars	3559	19.88
3.	Faculty Members	2953	16.49

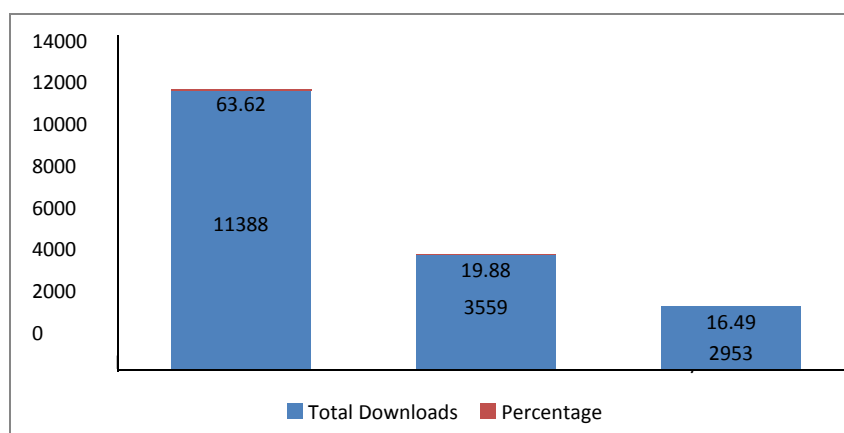


Chart 3: No. of downloads in user categories

7.4 CONTENT BASED LOGINS UNDER VARIOUS E-RESOURCES

Content based logins reflect number of unique sessions for different categories of eresources such as e-books, e-journals, subject databases, case law databases and hybrid database etc. This analysis helps to understand the most prominent or frequently used category of electronic resources. A case law database refers to the database which provides access to case laws either national or international. Examples of case law databases are Manupatra, SCC Online and LiveLaw, Westlaw and LexisNexis etc. Subject database proffers access to contents based on specific subject e.g. Kluwerarbitration.com, worldtradelaw.net and Taxmann.com providing access to the content based on Arbitration, Trade and Taxation respectively. A hybrid database is the database which provides access to a variety of contents in the form of e-books, ejournals, case laws and secondary materials on particular subjects. National Law University, Delhi Library extends access to all of these databases which has been summarized in table 4 below.

Table 4: Content based logins for various databases

S.No.	Type of E-resource	Unique logins	Percentage (%)
1.	Case Law Database	77766	61.37
2.	E-Journals	30910	24.39
3.	Subject Database	7285	5.74
4.	Hybrid Database	6711	5.29
5.	E-books	4042	3.18

According to the table 4, case law database category has the most number of unique logins i.e. 77766 during the mentioned period of study making this

category most prominent among other e-resources categories. This shows that among all e-resources, 61.37% users have mostly referred case law database for their study and research. The second most prominent e-resource category is e-journals category where 30910 (24.29%) unique logins have been made. The least unique login e-resource category is e-books category with 4042 (3.18%) logins only. Subject database and Hybrid database have 7285 (5.74%) and 6711 (5.29) unique logins respectively. This reflects that subject database and hybrid database have been less referred as compared to case laws and e-journals databases.

7.5 CONTENT BASED DOWNLOADS UNDER VARIOUS E-RESOURCES

Table 5 is the reflection of the number of downloads of documents under various categories of e-resources during the mentioned period of study. The e-resources category which made most number of download of documents is E-journals category with 36329 (63.92%) number of downloads. Case law database was the most prominent category for unique logins, but as per Table 5 this category has come down to second position with 10458 (18.4 %) downloads.

Table 5: Content based downloads for various databases

S.No.	Type of E-resource	No. of downloads	Percentage (%)
1.	E-Journals	36329	63.92
2.	Case Law Database	10458	18.40
3.	E-books	3562	6.26
4.	Hybrid Database	3316	5.83
5.	Subject Database	3163	5.56

Other e-resources categories show very less number of downloads as compared to case law databases and e-journals databases. E-books, Hybrid database and subject database has 3562 (6.26%), 3316 (5.83%) and 3163 (5.56%) number of downloads respectively.

7.6 MOST USED DATABASE UNDER VARIOUS E-RESOURCES CATEGORY

The present study undertakes usage patterns of various e-resources during the pandemic and lockdown period. Table 6 is an expression of most used or preferred database among different e-resources categories. The criterion for counting of the most referred database in various categories has been taken in terms of unique logins made for a specific database. Cambridge e-books (1842)

is the most preferred e-book database among other e-books categories. JSTOR (17073) is the most prominent e-journal database among e-journals platforms and SCC online (43149) stands as the most used case law database among other case law databases. Apart from this, Kluweronline database (4360) stands most preferred subject database and Westlaw (3915) is most referred Hybrid database among other hybrid database category.

Table 6: Major database in various e-resources category

Type of E-resource	Most referred database in the eresource category	Unique Sessions
E-books	Cambridge.org	1842
E-Journals	JSTOR	17073
Case Law Database	SCC Online	43149
Subject Database	Kluwerarbitration.com	4360
Hybrid Database	Westlaw	3915

7.7 COMPARISON OF NATIONAL AND INTERNATIONAL DATABASE

Chart 4 presents a comparison of usage between national and international database. A total of 35 databases have been accessed through remote access software by NLUD users.

Among these, 10 are Indian databases and 25 are International databases.

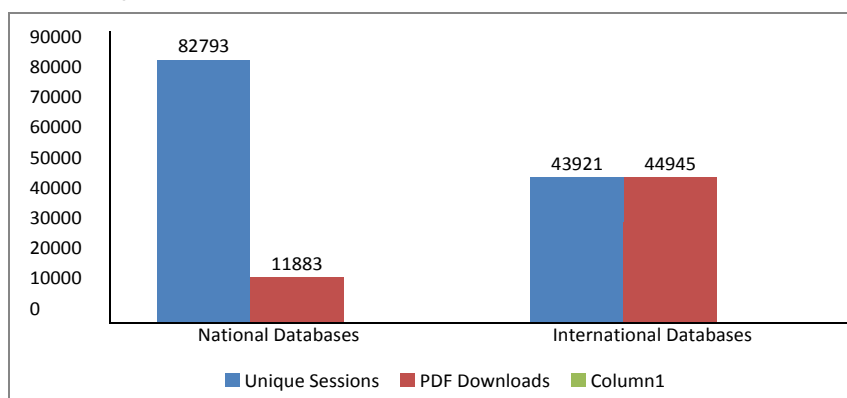


Chart 4: Comparison between National and International Database

It is evident from Chart 4 that National databases have more unique logins (82793) as compared to International databases (43921). As far as PDF downloads is concerned the situation is reverse. International databases have more PDF downloads (44945) in comparison to National databases (43291). Prominent national databases include SCC Online, Manupatra, Taxmann and

prominent international databases include JSTOR, HeinOnline, Westlaw, LexisNexis and KluwerOnline.

7.8 RANKING OF DATABASES

To assess the ranking of various databases, the criteria of most PDF downloads under a specific database has been taken. The database, in which most PDFs were downloaded, has been ranked as number 1. The databases have been ranked from 1 to 5 under overall categories of databases such as E-books, E-journals, subject databases, hybrid databases and case law databases. The ranking has been done under both national and international databases respectively as under:

7.8.1 RANKING OF NATIONAL DATABASES (INDIAN)

It is evident from the table 7 that Manupatra has most number of downloads under overall category and is ranked number 1 database with 8345 downloads. Taxmann is ranked 5 with 141 downloads. Livelaw.in, Epw.in and Claonline are ranked 2, 3 and 4 with 1975, 918 and 263 downloads respectively.

Table 7: Ranking of National Databases

Name of Indian database	PDF Downloads	Percentage %	Ranking
Manupatra	8345	72%	1
Livelaw.in	1975	17%	2
Epw.in	918	8%	3
Claonline	263	2%	4
Taxmann	141	1%	5

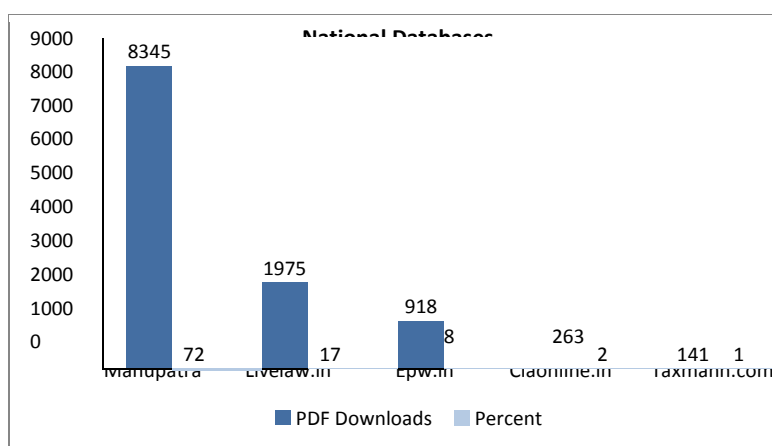


Chart 5: Ranking of National Databases

Chart 5 encompasses the ranking of databases based on PDF downloads during the mentioned period of study by users of National Law University Delhi. Chart 3 clearly shows that Manupatra is ranked 1 with 72% of PDF downloads making it most popular Indian database for the users. Livelaw.in, Epw.in, Claonline.in and Taxmann are ranked 2, 3, 4 and 5 with 17%, 8%, 2% and 1% of downloads respectively.

7.8.2 RANKING OF INTERNATIONAL DATABASES

Table 8 is the representation of ranking of International databases. This table shows that JSTOR stands as rank 1 in International database category with 22008 PDF downloads followed by HeinOnline as rank 2 with 13383 PDF downloads. Cambridge.org, Kluweronline and LexisNexis ranked number 2, 3 and 4 with 2709, 2619 and 2085 PDF downloads respectively.

Table 8: Ranking of International Databases

Name of International database	PDF Downloads	Percentage %	Ranking
JSTOR	22008	51.41	1
HeinOnline	13383	31.26	2
Cambridge.org	2709	6.32	3
Kluweronline	2619	6.11	4
LexisNexis	2085	4.87	5

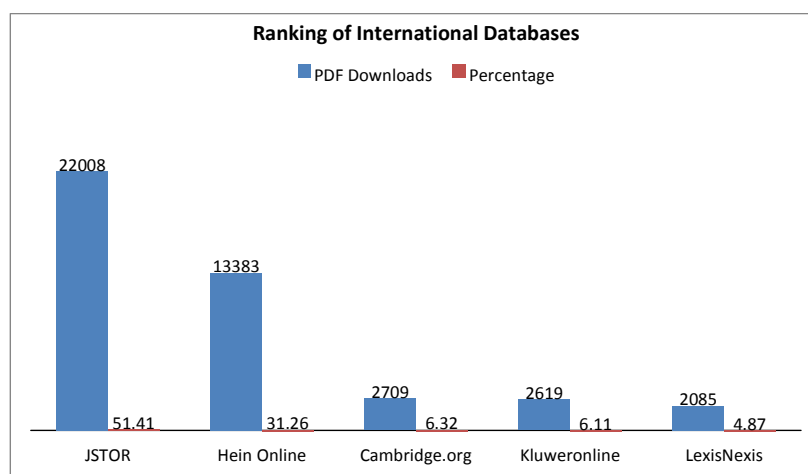


Chart 6: Ranking of International Databases

JSTOR accommodates 51.41% PDF downloads which is more than a half of other PDF downloads. Lowest PDF downloads with 4.87% is from

LexisNexis. HeinOnline, Cambridge.org and KluwerOnline accommodates 31.26%, 6.32% and 6.11% of PDF downloads respectively.

7.9 TOP 5 DATABASES IN OVERALL CATEGORY

Table 9 is an expression of the top 5 databases in overall categories in terms of PDF downloads. This table clearly shows that JSTOR stands as number 1 database in national as well international categories and also among all e-resources category. It is also evident from the table that only one Indian database i.e. Manupatra has made its place among top 5 database in overall categories.

Table 9: Top 5 database in overall category

Name of database	PDF Downloads	Ranking
JSTOR	22008	1
HeinOnline	13383	2
Manupatra	8345	3
Cambridge.org	2709	4
Kluweronline	2619	5

Top 5 Databases as per PDF Downloads

■ JSTOR ■ HeinOnline ■ Manupatra ■ Cambridge.org ■ Kluweronline

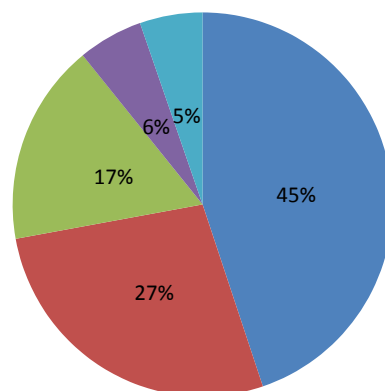


Chart 7: Top 5 Databases as per PDF Downloads

Chart 7 indicates that JSTOR is number 1 database in overall database category with 45% of PDF downloads. HeinOnline perceives 27% of PDF downloads making it second in the ranking. Only one Indian database i.e. Manupatra with 17% PDF downloads stands third in the ranking. Cambridge.org and Kluweronline have 6% and 5% PDF downloads respectively.

8 FINDINGS AND OBSERVATIONS

Due to ease of access and availability, online resource materials are more popular in comparison to printed library materials and remote access to the online content has made it easier to access e-contents from anywhere and without any physical barriers (Bhat 2019). Future generations can access the library facilities without any physical barriers enabling 24x7 access with limited manpower. The findings based on the analysis and interpretation of the data is presented as under:

- 1) The user categories taken for the study includes post graduate students, research scholars and faculty members. The study finds that post graduate students have maximum utilized the remote access facility for accessing the electronic resources during lockdown period of study. Around 151 post graduate students which stands 65% of total user strength have accessed various databases through remote access mechanism which is highest among other two categories. Simultaneously most number of logins for accessing various databases has been made by post graduate students.
- 2) The study also finds that most number of documents have been downloaded by post graduate students to support their study and research. Around 11388 documents have been downloaded by PG students which are more than the double from rest of the two categories of users i.e. research scholars with 3559 downloads and faculty members 2953 downloads. Through remote access mechanisms the usage of electronic resources has drastically increased during the lockdown period as compared to pre-lockdown times. The future planning and development of strengthening the base of legal education and research can be based on user access and research of electronic resources during COVID 19 (Singh 2021).
- 3) The databases undertaken for the study are categorized as e-books, e-journals, case law databases, subject databases and hybrid databases. On the basis of data collected through remote access software, it is found that case law databases have most number of unique logins (77766) which is highest among other e-resources categories. This refers that the case law databases have most of the times logged in by various users of National Law University Delhi.
- 4) The accumulation of data under content based downloads perceives that the eresources category which made most number of download of documents is Ejournals category with 36329 number of downloads. On the basis of analysis of data the study finds that case law databases have most unique logins and e-journals databases have most number of downloads. To enhance and improve advance research activities,

the procurement of databases providing e-journals has been the need of the hour during the lockdown period (Singh 2021).

- 5) The study shows that around 10 Indian databases and 25 International databases have been subscribed and available for access through remote access mechanism to various NLUD users. The study presents a clear comparison among national and international databases and finds that Indian databases have more unique logins 82793 as compared to International databases which have 43921 logins. However, the situation is just opposite in terms of downloads of document where most downloads have been made from International databases 44945 as compared to 11883 from national databases.
- 6) Manupatra is most popular Indian database which has 8345 PDF downloads and JSTOR is the most popular international database with 22008 PDF downloads. The study also finds that only one Indian database i.e. Manupatra is listed among top 5 databases and all other four are International databases.

9 LIMITATIONS AND RECOMMENDATIONS FOR FURTHER STUDY

Since the focus of this study to analyze the usage trends of electronic resources during the lockdown period caused due to COVID 19, it is felt that this study may not provide a complete overview of usage trends in all types of libraries all over India as the majority of studies focused on academic libraries. The limitation tends to study the user behavior towards the access mechanisms for e-resources of a law university students and faculties only. The search is also limited in scope as the user categories includes not all users of the university and is limited to PG students, research scholars and faculties only.

Furthermore, since the world-wide pandemic is still going on, new articles and studies might appear on related issues and topics in near future. The findings of this study include usage trends of library electronic resources, technological tools and remote access mechanisms used in providing those e-resources. This study may help librarians and stake holders to assess the actual and real-time requirements of their users and help in their strategic planning and quest for more relative tools for information services provisions during and post COVID-19 pandemic.

Since empirical studies exploring access mechanisms for electronic resources in law universities during the pandemic are currently being done at a low pace, further more studies are needed to fill this gap as the pandemic period is also nearing to an end. Other studies could focus on post pandemic experience on usage trends and behaviors, accounting for varying geographical location and languages. This may help librarians to transcend new opportunities and navigate through the new challenges they faced while connecting with their services and matching them with complex user requirements.

10 CONCLUSION

COVID 19 has forced a paradigm shift of education and research from offline to online mode in recent times. It is a tough time not only for students to continue their studies but also for teachers who are under tremendous pressure of imparting education with limited or closed access to schools, colleges and educational institutions. Numerous mechanisms have been adopted by stakeholders to clear the path for flawless learning among educators and learners. The pandemic has seen a great experience of remote access and learning in this challenged working environment for students and researchers for nurturing a culture of compassion and social solidarity (Winston 2020). The situation became worse when students were restricted to visit libraries with a view to limit the spread of corona virus. To combat this crisis, educational institutions adopted various measures to provide and continue the flow of education among students through different ways such as holding online lectures and classes, web based seminars and discussions, online learning platforms and so on. Libraries and information centers facilitates their user community through remote access software which helped to access electronic resources without any physical barriers. The study finds that remote access mechanism for facilitating access to electronic resources has been instrumental during the lockdown period caused due to global pandemic to continue the flow of study and research. Libraries are making a concerted effort to facilitate off-campus access to digital library and resources. This includes subscribing to Remotex, a system that enables off-campus library access (Mbambo-Thata 2021). Be it undergraduate students, post graduate students, research scholars or faculty members of NLUD, all have utilized the remote access facility for accessing databases. It is recommended that certain measures to be adopted by libraries and educational institutions to ensure viable technical support for such remote access software so that its services can be availed by users without any technical barriers not only during these trying times but beyond also.

REFERENCES

1. FERNANDEZ (P) (2020). Through the looking glass: envisioning new library technologies pandemic response technologies: Remote working. *Library Hi Tech News*. 37 (5): 21-23.
2. BURKE (S) (2020). Supporting libraries and learning resource centers during COVID19 lockdown. In *JISC*. <https://www.jisc.ac.uk/blog/supporting-libraries-and-learningresource-centres-during-covid-19-lockdown-07-apr-2020> (accessed 06 December 2021).
3. FRANCISCO (R) (2021). How EBSCO professional services transforms remote access for libraries in pandemic times. EBSCOpost. available at <https://www.ebsco.com/blogs/ebscopost/how-ebsco>

professional-services transforms remote access libraries pandemic times (accessed 13 December 2021).

4. DADHE (P P) and DUBEY (M N) (2020). Library services provided during COVID-19 pandemic: Content analysis of websites of premier technological institutions of India. *Library Philosophy and Practice* (e-journal): 4445. <https://digitalcommons.unl.edu/libphilprac/4445> (accessed 06 January 2022).
5. POKORNA (L), INDRAK (M), GRMAN (M), STEPANOVSKY (F) and SMETANKOVA (M). Silver-lining of the COVID -19 crisis for digital libraries in terms of remote access. *Digital Library Perspectives*. 36 (4): 389-401.
6. PANDA (S K), BHATT (A M), VIJAYKUMAR and SINGH (R P) (2021). Continuing of library services during the Covid-19 outbreak in Indian academic and research libraries: A survey. *Library Philosophy and Practice* (e-journal): 6066. <https://digitalcommons.unl.edu/libphilprac/6066> (accessed 24 December 2021).
7. ZHOU (J) (2021). The role of libraries in distance learning during COVID-19. *Information Development*. 20 (10): 1-12. <https://doi.org/10.1177/02666669211001502> (accessed 10 January 2022).
8. DECKER (E) (2021). Reaching academic library users during the COVID-19 pandemic: New and adapted approaches in access services. *Journal of Access Services*. 18 (1). DOI: <https://doi.org/10.1080/15367967.2021.1900740> (accessed 20 January 2022).
9. BISWAL (R) and JANA (S) (2021). Library operations during COVID 19 pandemic. *Turkish Journal of Computer and Mathematics Education*. 12 (14): 3311-3323.
10. MEHTA (D) and WANG (X) (2020). COVID-19 and digital library services – a case study of a university library. *Digital Library Perspectives*. 36 (4): 351-363.
11. SUKULA (S K) and BABBAR (P) (2020). Changing digital landscape of academic library services during COVID-19 pandemic with the support of remote access: An example from JNU library, New Delhi. *International Journal of Library Information Network*. 5 (2): 1-15.
12. AYENI (P O), AGBAJE (B O) and TIPPLER (M) (2021). A systematic review of library services provision to response to COVID-19 pandemic. *Evidence Based Library and Information Practice*. 16 (3): 67-104.
13. SAWANT (S) (2021). Services offered by Indian libraries during COVID 19. *Annals of Library and Information Studies*. 68 (2): 230-237.

14. WALSH (B) and RANA (H) (2020). Continuity of academic library services during the pandemic the University of Toronto libraries' response. *Journal of Scholarly Publishing*. 51 (4): 237-245.
15. BEGUM (D) and ELAHI (M H) (2022). Digital library services to support online learning amid COVID-19: a study of a private university library in Bangladesh. *Digital Library Perspectives*. 38 (3): 332-345 <https://doi.org/10.1108/DLP-03-2021-0025> (accessed 14 December 2021).
16. HOWES (L), FERREL (L), PETTYS (G) and ROLOFF (A) (2021). Adapting to the remote library services during COVID-19. *Medical Reference Services Quarterly*. 40 (1): 35-47.
17. BHAT (I H) (2019). Remote access (Off-campus access) to e-resources via EZ-proxy and RemoteXs facilities: A case study of Allama Iqbal library system, University of Kashmir. *IP Indian Journal of Library Science and Information Technology*. 4 (1): 2530.
18. MBAMBO-THATA (B) (2021). Responding to COVID-19 in an African university: The case the National University of Lesotho library. *Digital Library Perspectives*. 37(1): 28-38. <https://doi.org/10.1108/DLP-07-2020-0061>(accessed 22 January 2022).
19. ROY (A) (2020). The pandemic is a portal. *Financial Times*. <https://www.ft.com/content/10d8f5e8-74eb-11ea-95fefcd274e920ca> (accessed 02 January 2022).
20. SINGH (A) (2021). Remote access mechanism exploring electronic databases in law schools in India: A lifeline during Covid-19 lockdown. *Library Philosophy and Practice* (e-journal): 5746. <https://digitalcommons.unl.edu/libphilprac/5746>(accessed 13 December 2021).
21. WINSTON (A) (2020). Is the COVID-19 outbreak a black swan or the new normal? *MIT Sloan Management Review*. <https://sloanreview.mit.edu/article/is-the-covid-19outbreak-ablack-swan-or-the-new-normal/> (accessed 29 December 2021).