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Library Services Provided During COVID-19 Pandemic: Content Analysis of Websites of Premier Technological Institutions of India

Pooja P. Dadhe

RTM Nagpur University, Nagpur, India, ppdadhe@gmail.com

Manju N. Dubey

R.S Mundle Dharampeth Arts and Commerce College, Nagpur, India, libraryrsmducc@gmail.com

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Library Services Provided During COVID-19 Pandemic: Content Analysis of Websites of Premier Technological Institutions of India

Abstract

The novel coronavirus (COVID-19) disease presented unique challenges to all the stakeholders of education system. The sudden and unexpected outbreak of the virus forced the library professionals, to ascertain ways of working in a rapid time frame like shifting to digital platform wherever possible and to provide adequate remote services to the users. Given the extrinsic challenges in providing services during a public health emergency, the purpose of this paper is to find out how technology became a saviour for the premier technological institutions of India during the COVID -19 pandemic. The study explores the type of services provided by libraries of Indian Institutes of Technology (IITs) based on the contents published on their webpages. The study highlights the significant initiatives taken by the libraries which can be followed by others to meet the post lockdown needs.

Keywords : Remote Services, Virtual Services, COVID-19, Pandemic, Content Analysis

Introduction

The COVID-19 pandemic has forced governments worldwide to place their countries in full or partial lockdown to contain the spread of the virus. However, these lockdowns came with severe economic and social consequences, which has also presented unique challenges in the educational sector and has forced not just students but also policy makers and service providers including the librarians to adapt and adopt technology as a viable and valuable option to ensure fulfilment of the educational needs of the stakeholders and in overcoming various hurdles in this pandemic time. India, on 30 January 2020, reported its first positive case of the novel coronavirus (COVID-19) from the state of Kerala with a student, who was studying in Wuhan University and had travelled to India (Perappadan,2020). And as a precautionary measure to contain the spread of the virus, Government of India declared closure of all educational institutions across the country from 16 March 2020, which was initially for fifteen days (Times of India, 2020). However as on 10 October 2020 with 6,979,423 positive cases and 107,450 reported death, ("India Coronavirus," 2020) India is

one of the worst hit countries and the educational institutions are still closed. In response to the nationwide lockdown during March and April 2020, the school education sector was quick enough to shift its whole affair to online platform than the higher education sector in India(Wadia,2020). Perhaps the timing and duration of the initial decision to close educational institutions in India is one of the reasons behind this. As per the academic calendar in most of the higher education institutions class room teaching was almost over and examinations were about to start. However considering the rapidly evolving situation of the pandemic, the apex body of the higher education system of India, the University Grants Commission (UGC), decided to cancel all the examinations except the terminal semester/final years and directed to complete it by end of September 2020 (University Grants Commission, 2020). But the sudden developments of lockdown and shutdown for almost six months have forced dislocation of many students leaving them with lack of course materials to prepare for the examinations. This situation challenged the ways academic libraries used to function. The suspension of in-person services and loss of access to physical collections at the institutions' libraries has left the students, faculty and library professionals with consideration of adopting the technology which is the only way out to resilience the challenging time. In fact library professionals have demonstrated their skills, empathy and flexibility during lockdown to respond to the rapidly evolving situation. And in such circumstances the website is an essential and dynamic platform to connect and serve the targeted users. But technology cannot do this alone. In this unique and urgent situation the role of library professionals especially of premier technological institutions is very crucial to make their users aware about the facilities and services provided by them.

Indian Institutes of Technology (IITs): an Overview

After the end of the Second World War, Sir Ardeshir Dalal from the Viceroy's Executive Council foresaw the role of technology in the future prosperity of India and the establishment of Indian Institutes of Technology in which Dr. Humayun Kabir played an important role. In 1945, Dr Kabir along with Sir Jogendra Singh of the Viceroy's Executive Council (Department of Education, Health and Agriculture) set up a twenty two member committee under the chairmanship of Sir Nalini Ranjan Sarkar to prepare a proposal. The Sarkar Committee in 1945 recommended establishing at least four Higher Technical Institutes on the lines of world renowned Massachusetts Institute of Technology (MIT), U.S.A. in the Eastern, Western, Northern and Southern regions of the country. It was Pandit Jawaharlal Nehru, the

first Prime Minister of free India, who pioneered establishing of the Indian Institutes of Technology to provide trained technical personnel of international class to the nation who would act as leaders in technology for the newly born independent India (Council of IITs). In 1950, the first IIT was established in Kharagpur .Within a decade of the launch of the first IIT, four more were set up: IIT Bombay (1958), IIT Madras (1959), IIT Kanpur (1959), and IIT Delhi (1961). Decades later, the sixth IIT was established in Guwahati (1994). The first technical institute of India set up in 1847 known as Thomson College of Engineering and subsequently known as the University of Roorkee was designated as the seventh IIT in 2001. Later in the year 2008, six new IITs were started named IIT Bhubaneswar, IIT Gandhinagar, IIT Hyderabad, IIT Patna, IIT Rajasthan, and IIT Ropar. This was followed by two more IITs in 2009 i.e. IIT Indore and IIT Mandi. In 2012, Institute of Technology, Banaras Hindu University (BHU) was ordained as the sixteenth IIT. IIT Palakkad and IIT Tirupati came into existence in 2015, and in 2016 five more IITs, IIT (ISM) Dhanbad, IIT Bhilai, IIT Goa, IIT Jammu and IIT Dharwad were started. Out of these IIT (ISM) Dhanbad was setup in 1926 as The Indian School of Mines.

Over the years IITs have created world class educational platforms dynamically sustained through internationally recognized research based on excellent infrastructural facilities. The faculty and alumni of IITs have made huge impact in all sectors of society, both in India and abroad. The institutes are globally recognized as centres of academic excellence, and are reputed for the outstanding calibre of the students graduating from there. (Council of IITs).

Review of literature

The role of libraries in public emergencies has been discussed with much attention in the past. For instance **Featherstone and others** have highlighted the variety of roles that librarians can play in emergency. Through telephonic and email interviews the authors recorded the stories of twenty-three North American librarians who responded to bombings and other acts of terrorism, earthquakes, epidemics, fires, floods, hurricanes, and tornados. The study reports significant contributions of the librarians towards preparedness and recovery activities of library services surrounding disasters. **Zach** presents an overview of public libraries' responses to emergencies and discussed how public libraries have provided essential information services during time of crisis. The study suggests that public libraries need to build their position as a trustworthy source of primary information by providing quick and easy access to those patronages looking for information about what to do in an

emergency. **Tu-Keefener and others** have conducted a situation-specific case study to identify health information services and technology access during and after the catastrophic flooding in South Carolina. The study investigated the role played by public libraries as partners of public health agencies during and after a disaster. Focus group meetings and one-on-one interview method was used to get the required data. The study recommended that public libraries should be proactively prepared to provide reliable disaster and health digital resources for adult users (Tu-Keefner, Liu, Hartnett, & Hastings, 2017). **Bishop and Veil** through their study titled “Public Libraries as Post-Crisis Information Hubs” reports that public libraries played a great role by providing internet access to community members to request aid, to help find missing family and friends, to file insurance claims, and, in general, to begin rebuilding their lives. This article reports the quality of services and activities public libraries performed in response and recovery in twelve different communities impacted by tornadoes. The discussion includes an evaluation of the quality of the responses and also lists some recommendations to improve the preparedness and response in time of emergencies (Bishop & Veil, 2013). **Jingjing Liu and others** have emphasized the role libraries could play in disaster preparedness and recovery via social media by disseminating credible information. The recommendations given by the authors could help libraries to proactively create risk communication strategies using social media for effective information services (Liu, Tu-Keefner, Zamir, & Hastings, 2017).

Objectives

The Primary objective of the study is to find out the facilities and services provided by the IIT libraries during COVID-19 pandemic through multiple lenses:

- Type of facilities and services provided to the users.
- Mode of dissemination of services during the period.
- Preventive measures taken to combat coronavirus
- Adhoc services introduced

Scope of the Study

The present study covers the library websites of the Indian Institutes of Technology (IITs). All the 23 library websites/webpages had been selected for the study (Table1). However except a brief about information, no other details could found from the page of IITDH. Hence, this study reports the findings of the remaining 22 libraries.

Table -1
List of Indian Institutes of Technology

S.N.	Name of Institutes	Web Address	Abbreviations
1	Indian Institute of Technology (IIT), Kharagpur	http://www.iitkgp.ac.in/	IITKGP
2	Indian Institute of Technology (IIT), Bombay	http://www.iitb.ac.in/	IITB
3	Indian Institute of Technology (IIT), Madras	http://www.iitm.ac.in/	IITM
4	Indian Institute of Technology (IIT), Kanpur	http://www.iitk.ac.in/	IITK
5	Indian Institute of Technology (IIT), Delhi	http://www.iitd.ac.in/	IITD
6	Indian Institute of Technology (IIT), Guwahati	http://www.iitg.ernet.in/	IITG
7	Indian Institute of Technology (IIT), Roorkee	https://www.iitr.ac.in	IITR
9	Indian Institute of Technology (IIT), Bhubaneswar	http://www.iitbbs.ac.in/	IITBBS
10	Indian Institute of Technology (IIT), Gandhi Nagar	http://www.iitgn.ac.in/	IITGN
11	Indian Institute of Technology (IIT), Hyderabad	http://www.iith.ac.in	IITH
12	Indian Institute of Technology (IIT), Jodhpur	http://www.iitj.ac.in/	IITJ
13	Indian Institute of Technology (IIT), Patna	http://www.iitp.ac.in/	IITP
14	Indian Institute of Technology (IIT), Indore	http://www.iiti.ac.in/	IITI
15	Indian Institute of Technology (IIT), Mandi	http://www.iitmandi.ac.in/	IITMandi
16	Indian Institute of Technology (IIT), Ropar	http://www.iitrpr.ac.in/	IITRPR
16	Indian Institute of Technology (Banaras Hindu University), Varanasi	http://iitbhu.ac.in	IIT BHU
17	Indian Institute of Technology (IIT), Palakkad	http://iitpkd.ac.in	IITPKD
18	Indian Institute of Technology (IIT), Tirupati	http://iittp.ac.in/	IITTP
19	Indian Institute of Technology (Indian School of Mines), Dhanbad	http://iitism.ac.in/	IITISM
20	Indian Institute of Technology (IIT), Bhilai	https://www.iitbhilai.ac.in/	IITBH
21	Indian Institute of Technology (IIT), Goa	http://www.iitgoa.ac.in	IITGOA
22	Indian Institute of Technology (IIT), Jammu	http://iitjammu.ac.in	IITJMU
23	Indian Institute of Technology (IIT) Dharwad	http://www.iitdh.ac.in/	IITDH

Limitations of the Study

The findings of the study are purely based on the contents available on the day of investigation of websites. Given the impermanent nature of web contents, some services provided by the libraries at some point of time during this pandemic might not be reported in the study. Secondly, services carried out offline by the libraries under study but not uploaded on the websites could not be analyzed. Hence a comprehensive coverage cannot be claimed.

Methodology

The area of study of content analysis of websites is not new. With the advent of Information and Communication Technologies (ICT), websites are functioning as gateways for libraries to reach its prospective users as, this is the ways in which the present information users interact and engage with. Eventually with popularity web contents, a proliferation of literature on evaluation of web content through pre designed checklist based on recommendations of previous studies is quite visible (Pareek & Gupta, 2012), (Devi & Verma, 2019). At the same time a sizeable literature dealing with library services during and after natural disaster like flood, cyclone is also available. However the COVID-19 pandemic is unique with regard to the scale, the impact and duration of the situation. It is unprecedented and the library professionals have had to work from home for more than a month during the nationwide lockdown. As the pandemic is still ongoing as on 10 October 2020 much literature is not published, the present study is not based on a pre designed checklist, instead it investigates the websites under study and records the users services provided through the websites. However three broad areas of information which are considered necessary during this unprecedented situation keeping in view the objectives of the study are identified and findings are grouped under the best relevant head. The areas are: Type of services provided through virtual mode, initiatives taken in response to COVID-19 and adhoc services introduced in view of the situation. The search of the websites was conducted during 18 September 2020 to 27 September 2020. This survey studied all the 23 IIT libraries listed in the webpage of Department of Higher Education, Government of India. ("Dept of HE Govt of India,"). Broadly this study uses the method of investigation of the websites to find out the responses of the libraries of the premier technological institutes of India to COVID -19.

Findings :

❖ Type of Services Provided

In the education sector, online learning has emerged as an elixir to address the restrictions imposed in the wake of coronavirus pandemic and considered as a feasible option to overcome the challenges. Consequently libraries have been exploring the collection of potential e-resources and providing remote access to those which may be of interest to the fraternity in support of academic and research activities. Nine libraries (41%) have provided direct link on the home page to increase the visibility (Table – 2) rest have linked it under various broad heading like central facility (6), academics (2), Quick links (2), one each under campus (IITGoa), services and amenities (IITP), resources (IITD). While many libraries have significant digital services, some even have introduced multi-mode access to resources in order to deal with the demand. Some of the significant services and facilities provided by the libraries under study are discussed here.

- **Remote Access to E-resources**

The main aim of any academic library is to enhance and strengthen the teaching, learning and research process by installing seamless document/information delivery system and around the country all libraries of higher education system have been working hard to provide services and access to collections to the users who have been displaced due to COVID-19. While all the libraries under study have provision of remote access to subscribed e resources, many have taken a lot of effort in leveraging and expanding existing online services. Notably IITKGP, IITK, IITBBS, IITGN, IITJ, IITI, IITM and IITBHU have displayed step by step user guide on remote login to get access to the licensed E-resources.

- **Free and Expanded Access**

In response to the uncertain and difficult time, some publishers are providing expanded access to e resources (access to additional materials than subscribed by the library) including e-books, e-journals, e-databases etc. for a limited period during this pandemic. The list of such publishers along with details are given by 11 libraries (50%) (Table – 2). Libraries have highlighted the links of these free and expanded resources on their portal to facilitate visibility of these options available for users. This has enhanced the possibility of users availing the virtual services and hence, visiting library portal

frequently. Almost all the libraries have facilitated access point to provide digital version of the newspaper and magazines that can be read using any convenient handy digital devices.

- **Open Access Resources**

Beyond this, there are many scholarly freely available resources available notably National Digital Library of India (NDLI), Shodhganga, a repository of Electronic Thesis and Dissertation, Directory of Open Access Journals (DOAJ), AMS Free Online Books, Book Boon, Directory of Open Access Books (DOAB) and many more. Remarkably 20 libraries (91%) (Table – 2) have brought together all such resources onto a single page and made these available for their users in anticipation to the information need. IITBHU has provided link of resources sharing initiative by International Federation of Library Association (IFLA)(Figure- 6).

- **Resources Related to COVID-19**

Access to licensed electronic resources is subject to the terms and conditions under which they are procured. As the scientific community across the globe is racing against time to develop a definitive treatment for the disease, access to as much as and as quickly as possible published literature to accelerate the ongoing research is the need of the hour. Notably, a lot of commercial publishers and vendors have taken a significant initiative and have provided open access to materials related to COVID-19. Others have facilitated access by making it easier to log-in and access materials from outside of official networks. National Digital Library of India(NDLI), an IIT Kharagpur initiative throws open its services to all, providing special COVID-19 related literature and information ranging from research writings, projects, funding, start-ups, datasets , multimedia contents under the a single section ‘COVID-19 Research Repository’. Almost all the IIT libraries were proactive in promoting and amplifying the use of these useful resources by highlighting NDLI link on their website homepage. It was indeed a sort of ‘Bibliotherapy’ in the crisis of COVID-19 with an objective of turning crisis into opportunity (Figure - 1and 2). Ten libraries (45%) (Table – 2) have put together a list of major scholarly resources relating to COVID-19 which are freely accessible from anywhere. IITGN has displayed a pool of such materials for the convenience of the users. (Figure – 3 and 4)

Figure – 1 and 2

NDLI's special service on COVID- 19 related resources and scholarly opportunities

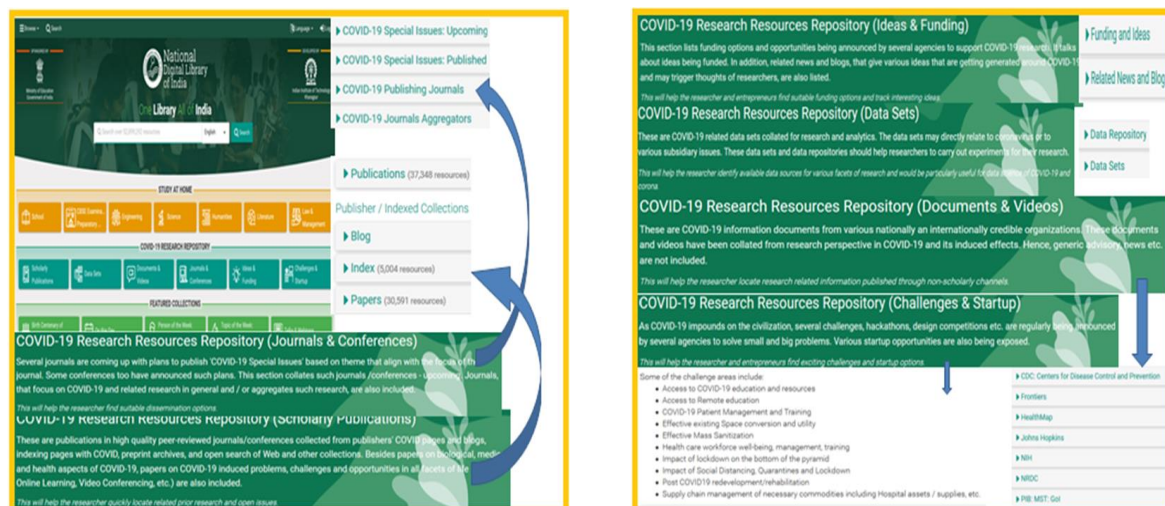


Figure – 3 and 4

Pool of Online Scholarly Resources on COVID – 19 (Free and Full Text) Curated by IITG

Freely accessible Scholarly Resources on Coronavirus (Covid-19)	Sources for Locating Full Text of Articles
BASE: Bielefeld Academic Search Engine	AIP Publishing: COVID-19 pandemic
COVID-19 research database	American Chemical Society Efforts & Resources on COVID-19
bioRxiv: Preprint server for Biology: COVID-19 SARS-CoV-2	American College of Physicians: Annals of Internal Medicine
CORE-Aggregating the world's open access research papers	American College of Physicians: Covid-19 ACP Physician's Guide
Google Scholar: Articles about COVID 19	American Medical Association: JAMA Coronavirus Resource Center
COVID Scholar: AI based new search engine	American Society for Microbiology: Novel Coronavirus resources and research articles
medRxiv: Preprint for Health Sciences-COVID-19 SARS-CoV-2	American Society of Mechanical Engineers
LiCOVID- National Library of Medicine	APA: Pandemics- General Articles
Meta (Beta version): COVID 19	APA: COVID-19 Free Articles from APA Journals
Microsoft Academic: Coronavirus disease 2019 (COVID-19)	ASTM Standards & COVID-19
PubChem: COVID-19 (Coronavirus Disease 2019) data in PubChem	BioOne COVID-19 articles: open access through 2020
SciFinder-n	BioWorld
Scopus	British Medical Journal (BMJ): Coronavirus
Semantic Scholar: COVID-19 Open Research Dataset	CABI
Web of Science	Cambridge University Press COVID-19 articles and book chapters
	Cell Press Coronavirus Resource Hub

Sources for Locating Full Text of Articles	
Centre for Disease Control & Prevention USA: Coronavirus	National Institutes of Health: Coronavirus
Clarivate (Web of Science)	National Library of Medicine
Cochrane Library: Coronavirus (COVID-19)	Nature Magazine: Coronavirus and COVID-19
COVID-19 Updates & Information powered by EBSCO	New England Journal of Medicine COVID-19 Resources
CSIRO Journal of Primary Healthcare	Oxford University Press free access to resources on coronavirus and related topics
Duke University Press: Navigating the Threat of Pandemic Syllabus	PLoS: COVID-19 Updates
DynaMed COVID-19 (Novel Coronavirus) Topic Guide	Project MUSE: Free Resources on MUSE During COVID-19
Elsevier: Novel Coronavirus Information Center	Royal Society of Chemistry
Emerald Publishing free content related to Coronavirus and the management of epidemics	Royal Society: Sharing research data and findings relevant to the novel coronavirus outbreak
European Respiratory Society	Sage Publishing: Free access COVID-19 articles
Future Science Group	Science (AAAS)
HighWire Press: COVID-19 On the Information Frontline	Science Magazine: Coronavirus: Research, Commentary, and News
IEEE	SIAM Epidemiology Collection
Indian Council of Medical Research	Society of Critical Care Medicine
IHS: Covid-19 Resource Hub- Helping Cities and Towns confront Covid-19	Springer Nature Springer Nature: Coronavirus Protocols and Methods on Springer Nature Experiments
Institute of Physics Publishing	Springer Nature: Free research articles, ebooks, and additional commentary on COVID-19
IntechOpen	Springer Publishing Company Taylor & Francis: COVID-19: Novel Coronavirus Content
Itihaka S-R COVID-19: resources for higher education and academic libraries	Thieme Pub: Coronavirus
JAMA : Coronavirus Disease 2019 (COVID-19)	University of Chicago Press articles and book reviews on COVID-19
JoVE Coronavirus Free Access Resource Center	book reviews on COVID-19
JSTOR resources during COVID-19	WHO
Karger Topic Article Package: Coronavirus (COVID-19)	Wiley Online Library: Free to access Novel Coronavirus Content
Mary Ann Liebert, Inc: Coronavirus Highlights Urgent Need for Science-Backed Research	Wiley: Covid-19: Novel Coronavirus Content Free to Access
Microbiology Australia	Wolters Kluwer
MIT Press: Articles for Understanding Pandemics and Epidemiology	World Scientific: Coronavirus information from World Scientific
National Digital Library of India	ZB MED Establishes special services to support research

Table – 2

Services in anticipation of the information needs

Types of services provided	IITKGP	IITB	IITM	IITK	IITD	IITG	IITR	IITBBS	IITGN	IITH	IITJ	IITP	IITI	IITMandi	IITRPR	IITBHU	IITPKD	IITTP	IITISM	IITBH	IITGoa	IITJMU
Direct link of library on home page	√	√					√		√	√	√		√					√	√			
Remote access	√	√	√		√	√	√	√	√	√	√	√	√	√		√	√	√	√		√	√
COVID – 19 scholarly resources	√		√		√	√			√		√		√	√		√					√	
Expanded trial access			√		√	√			√		√		√	√		√		√			√	√
Link of Open Access Resources	√	√	√	√	√	√	√	√	√		√		√	√	√	√		√	√	√	√	√

- Assistance in Technological Initiatives**

The very purpose of establishing these technological institutes are to make the country self-reliant in her technological needs (Council of IITs). Across the years, all these institutes have come up to the expectations which are evident from the technological initiatives taken by the institutes during the unprecedented COVID – 19 pandemic. To name a few starting from preparation of mask, sanitizer, low cost ventilators to interactive dashboard to get different epidemiological scenario specific information at a city scale. Libraries support the main objectives of the institutes, hence in the technological developments libraries have also played a great role in addressing the information needs of the researchers. While majority of the libraries have provided online access to various standards, IITK's library page displays the ISO and ASTM standards for preparation of mask. Some of the major innovations are quite visible from the figure No – 5.

Figure – 5
Significant measures to address COVID -19 : issues and concerns
(Institutional social Responsibility)



❖ Initiatives Taken in Response to COVID-19

• Special Services During COVID – 19

To enhance the visibility of the resources and to ease the information searching work seven libraries (32%) (Table –3) have provided a one stop solution by putting all the useful resources under one heading namely library services during COVID (figure - 6)

Figure – 6
Extensive Outreach Activities of Various IIT Libraries



• SOPs to Contain Spread of COVID-19 in Libraries

Library being a central facility of educational institutions, visit to library building is quite high than any other section of the institute. Further, the workspace of libraries are relatively close setting with shared spaces like stack room, reading room, multimedia lab, circulation counter etc. And hence the vulnerability for the spread of coronavirus is comparatively fast among library staff and visitors. It is imperative to make the library virus free by taking some preventative measures. As a remarkable initiative 10 (45%) libraries (Table – 3) have issued Standard Operating Procedures (SOPs) to be followed by users wishing to visit the physical facility of the library to ensure the safety of the staff as well as the visitors. It was found that SOPs guidelines were placed on the website in a very highlighted manner to catch the attention of its patrons and also to ensure that

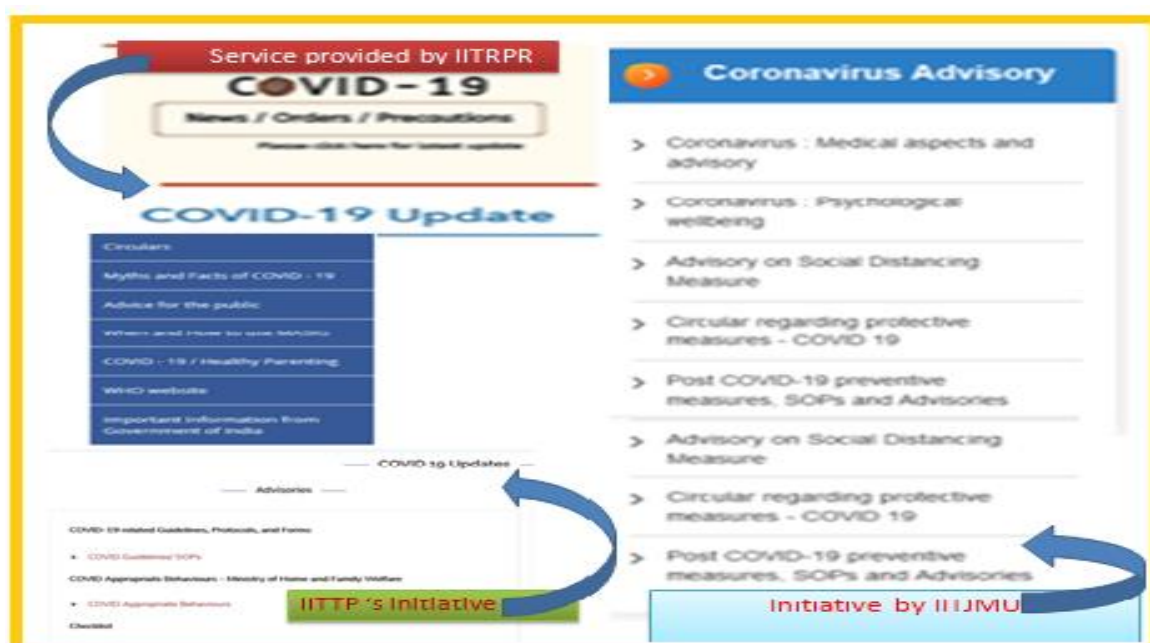
visitors have a know how about these SOPs in advance thus facilitating use of preventive measures while providing library services.

- **News / Order and Guidelines**

Coronavirus is rapidly evolving in nature. In view of the prevailing situation on COVID-19 competent authorities like World Health Organisation, Government of India, various State Governments have issued directives/instructions time to time on preventive measures to be followed to contain the spread. Many libraries have prepared an information page which displays health advice, updates on the Government's and World Health Organisation's guidelines, and ideas on how to deal with fake news at the time of the pandemic. While 7 libraries (32%) (Table -3) have either provided link of World Health Organisation, Government of India, State Government sites or have posted the guidelines issued from competent bodies some of them have gone one step further. IITRPR has provided information on extended areas like myths and facts of COVID-19, COVID-19 healthy parenting etc on the library page. IITJMU has displayed Coronavirus advisory- psychological wellbeing, medical advisory, circular along with post COVID-19 preventive measures. Thus libraries have come up with special 'Information Literacy drives' about COVID and related issues by connecting library patrons with the inside out about all aspects of COVID-19 health emergency.

Figure – 7

Online COVID -19 References and Referral services (News / Orders and Guidelines)



- **Safety measures for library workforce**

It is indeed a challenge before any organisation to keep the staff safe and comfortable in providing services. As libraries re-opened in May after nationwide lockdown, many are doing so only for limited hours every day, and are allowing staff to work with minimum number in accordance with the government guidelines. Three libraries namely IITK, IITD and IITMandi have rescheduled their working hours during this period. A further step being taken by some is to limit the number of sections of the library open to users as the use of certain facilities may make the workplace contaminated and increase the risk of spread of the virus to staff. This has been the case in IITKGP, as well as in IITGN, which has kept a number of areas (reading areas, stack rooms) inaccessible looking into the safety and security of everyone concerned. IITD has also barred the use of computers for searching of Online Public Access Catalogue and urged to use personal devices to check the online catalogue either by visiting the library website or by using the Single Window Search or Library App or Remote/Off-Campus Services.

Table – 3
Initiatives Taken in Response to COVID-19

Types of services provided	IITKGP	IITB	IITM	IITK	IITD	IITG	IITR	IITBBS	IITGN	IITH	IITJ	IITP	IITI	IITMandi	IITRPR	IITBHU	IITPKD	IITTP	IITISM	IITBH	IITGoa	IITMU
Link of special services during COVID - 19	√			√	√				√		√		√	√		√						√
Share of notification of WHO/Government of India		√						√		√	√					√		√				√
Display of SOPs			√	√	√			√	√	√	√		√	√				√		√		√
Display of research support tools	√	√	√	√	√		√	√	√		√	√	√	√		√	√	√	√	√		√
Restricted working hours				√	√									√								
Restriction on certain services	√				√				√													

❖ **Adhoc Services Introduced in View of the Situation**

- **Access to Print Materials**

IITGN has taken special effort to make the print collection available to its users. They have compiled a list of course reading materials and provided a link to it and have also introduced delivery of scanned pages of a chapter or two of a print document available in

the library collection on request. IITKGP, IITR and IITI have also introduced the service of online delivery of document/ research paper on request.

- **Easing of Penalty Rules**

IITGN has extended the due date for all types of reading materials issued to all categories of members till 15th December 2020. Whereas IITI has renewed thousands of books issued prior to lockdown to avoid penalty to students.

- **Assistance in Information searching and scholarly writing**

In order to easing the stress level of users to get the required information, libraries themselves are doing great work to inform their members and support them in this difficult time. Library of IITI web page welcomes the visitors with flashing message “We are always here for you”, while IITGN’s page shows “we are open both physically as well as virtually”. All these tag lines provides a great motivational impetus in easing out the COVID related concerns in the mind of the library patrons in a big way. The virtual nature of services provided by the libraries going in lines with continuous technological development got a boost in this time of COVID -19 health emergency. It was found that that efficiency of libraries in providing virtual reference services in a new and improved manner got enhanced during this COVID -19 obligations on providing physical services in person. Various attempts were made to facilitate Inter library loan services on a virtual basis from requisition to supply.

Similarly Plagiarism checking, Grammarly services, Email Alert services, Scanned document services were taken as the priority services and all efforts were taken by libraries to highlight these services on the websites with complete detailing of the requisite process for these services. Twelve libraries (55%) have extended research assistance in the areas of literature search and plagiarism checking to boost the research activities carried out by their patrons. Moreover, Eighteen libraries (82%) have provided access to various online research support tools subscribed by them. Remarkably IITI has issued about 900 originality check report to students of their research work.

- **Organisation of Virtual Events**

Many libraries have taken effort in arranging webinars relating to topics starting from information literacy to research ethics to educate their users on the use of digital

information in their learning and research activities (Table – 4). While many have hold a series of webinars to strengthen the research capabilities of the patrons on topics like Turnitin user awareness, getting aliened to the publishing process, empowering Indian research on COVID - 19, IITJMU has conducted a virtual book exhibition. IITI has even conducted a virtual orientation program to increase the usability of its facilities and services. IIT Libraries were found to be on the forefront in educating, engaging and empowering its users by knowledge dissemination and proliferation in different areas of academia. Role of libraries in proliferation of knowledge got more consolidated by activities and webinars conducted by libraries in this crisis time. It was found that various topics of deliberations in these webinars were very relevant and apt going in line with ‘making a difference’ in providing something to everyone in an easy and convenient manner.

Table - 4
Adhoc Services Introduced in View of the Situation

Types of services provided	IITKGP	IITB	IITM	IITK	IITD	IITG	IITR	IITBBS	IITGN	IITH	IITJ	IITP	IITI	IITMan Al	IITRPR	IITBHU	IITPKD	IITTP	IITISM	IITBH	IITGoa	IITJMU
Information on wave of penalty on overdue books / renewal of book									√				√									
Research assistance/literature search/plagiarism check	√	√		√	√		√	√	√		√	√	√			√					√	
Online research support tools	√	√	√	√	√		√	√	√		√	√	√	√		√	√	√	√	√		√
Organisation of virtual events	√			√	√		√		√		√		√			√		√			√	√

Conclusion

The outbreak of the COVID-19 pandemic has necessitated sudden and radical changes in delivery of library services, as strict social distancing and lockdown measures were imposed in the early phases of the pandemic. The Internet and web technologies have created a new and unparallel environment and enabling the libraries to enhance and strengthen the research, teaching and learning even in this difficult and uncertain time. The concept and practice of providing remote access of e resources by libraries is not new, but the user friendly way adopted by many libraries and the number of resources made available by them during the pandemic is exemplary. Considerable planning by the library professionals will be required even after the open of educational campuses. It will be imperative to re-assess every existing service and re-design it in view of the government protocols to deal with the situation. Following strict social distancing measures visit to library could be restricted when institutes

re-open. Users may demand for additional digital resources if the situation does not improve much for a longer period of time. The points discussed in this article are aimed in providing evidence which can be the basis for sound decision making while selecting any new features or refining the existing features in the services to be planned even after post COVID – 19 which will at least reduce the gap that students are likely to experience if restriction to visit the physical facilities of the libraries will continue even after re-opening of the institutions. While many academic libraries in India are still struggling to build a strong e-platform to render their services, adoption of tech-led holistic approach is the only way out which can help tide over the challenge and keep the libraries functioning without a halt. Libraries have acted smart even this time and evolved as a continuous learning factory. It can be said from this study that libraries are emerging as new genre of knowledge hubs capable of playing a vital role in supporting our nation to settle into a new normal situation.

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