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Shilpi
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पुस्तकालय एवं सूचना विभाग,
Department of Library & Information Science
आचार्य श्री अज्ञान प्रकाश विश्वविद्यालय
Rabhasahab Bhimdas Anandker University
विद्या विहार, राहबरेली रोड,
Vidya Vihar, Raebareilly Road,
मैथिली - 226 025 (उत्तर प्रदेश)

**MANAGEMENT EFFECTIVENESS IN CENTRAL LIBRARY OF
INDIAN INSTITUTE OF TECHNOLOGY, ROORKEE DURING
COVID-19 PANDEMIC SITUATION: AN ANALYTICAL STUDY**

A Dissertation

FOR THE DEGREE OF

MASTER OF PHILOSOPHY

IN

LIBRARY AND INFORMATION SCIENCE

SUBMITTED BY

SHIV AVTAR

Supervisor

Prof. K. L. MAHAWAR



DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE

(School for Information Science and Technology)

BABASAHEB BHIMRAO AMBEDKAR UNIVERSITY

(A Central University)

VIDYA VIHAR, RAIBARELI ROAD, LUCKNOW,

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Submitted by	O. P. Saini
Submitter email	gbl.bbau@gmail.com
Similarity	0%
Analysis address	gbl.bbau.bbau@analysis.urkund.com

Sources included in the report

DECLARATION

I hereby declare that this dissertation entitled “**MANAGEMENT EFFECTIVENESS IN CENTRAL LIBRARY OF INDIAN INSTITUTE OF TECHNOLOGY, ROORKEE DURING COVID-19 PANDEMIC SITUATION: AN ANALYTICAL STUDY**” submitted by me for the degree of the Master of Philosophy in Library and Information Science to the Department of Library and Information Science, Babasaheb Bhimrao Ambedkar University (A Central University), Lucknow is an outcome of my own efforts and is an original work. The content of this dissertation did not form a basis for the award of any previous degree to anyone else.

Date: 31-12-2021
Place: Lucknow

Shivantar
(Shiv Avtar)
Research Scholar

CERTIFICATE

This is to certify that the dissertation titled “**MANAGEMENT EFFECTIVENESS IN CENTRAL LIBRARY OF INDIAN INSTITUTE OF TECHNOLOGY, ROORKEE DURING COVID-19 PANDEMIC SITUATION: AN ANALYTICAL STUDY**” submitted by Mr. **Shiv Avtar** is an original research work and has not been previously submitted in part or full for the award of any other degree or diploma to this or any other university.

The dissertation submitted to Babasaheb Bhimrao Ambedkar University, Lucknow satisfies all the requirements as stipulated in Master of Philosophy (M.Phil.) regulations-2016 amended in 2019 and it is fit for submission and evaluation for the award of the degree of Master of Philosophy in Library and Information Science of the University.

Date: 31.12.21

Place: Lucknow


31.12.21
Supervisor


4/1/2022

Head of the Department

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Date: 31-12-2021

Place: Lucknow

Shivantar
(Shiv Avtar)

Research Scholar

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PREFACE

The study on “**MANAGEMENT EFFECTIVENESS IN CENTRAL LIBRARY OF INDIAN INSTITUTE OF TECHNOLOGY, ROORKEE DURING COVID-19 PANDEMIC SITUATION: AN ANALYTICAL STUDY**” is done to find out the effectiveness of management in IIT’s central library during Covid-19, library services have been delivered to the users due to Covid-19 and the problems faced by the library staff. All these points have been discussed in details. This research work is important to manage the libraries during any pandemic like Covid-19 in future.

Chapter 1: Introduction

The first chapter discusses about the management effectiveness in IIT library. After that objectives of the study, significance of the study, statement of the problem, hypotheses, scope and limitations of the study and research methodology are discussed.

Chapter 2: Review of Literature

The second chapter presents the review of literature regarding library management and services during Covid-19.

Chapter 3: Institution Profile: Indian Institute of Technology, Roorkee

The third chapter is about the profile of Indian Institute of Technology, Roorkee and IIT’s central library and its services.

Chapter 4: Covid-19 Outbreak in India

The fourth chapter discusses Impact of Covid-19 on education and library in India.

Chapter 5: Data Analysis and Interpretation

The fifth chapter presents tabulation, statistical analysis, interpretation and graphical representation of the collected data from the library staff members.

Chapter 6: Findings, Conclusion and Suggestions

The sixth chapter presents the major findings and conclusion of the study. It deals with recommendations of the study and suggestion for further future research.

CHAPTER - 1
INTRODUCTION

CHAPTER 1

INTRODUCTION

1. Introduction

Education provides citizens with knowledge, and well-informed individuals make for better communities. Libraries are centres of learning and knowledge, and they are an essential part of society. Libraries have gone through several versions, starting with the past chained and closed-access libraries. These include today's hybrid, digital, and virtual libraries, which employ cutting-edge technology to provide information through various services. As a result, librarians have evolved from book guardians concerned about theft, mutilation, and theft to information officers, navigators, and cyber librarians operating in a sea of literature and focused on assisting their users who seek knowledge everywhere and at any time.

The research looks at the conditions, problems, difficulties, supports, remedies, and management at the Indian Institute of Technology, Roorkee's Central Library during the Covid-19 Pandemic. The outbreak of the covid-19 sickness in India has been widely acknowledged to have impacted academic activity, particularly teaching and research. Because the central library of a university or institute acts as the nerve centre for sustaining the teaching system, learning, and research, it's only natural that it would get congested in an emergency. In addition, operating a library in a crisis is more complicated than using it under normal conditions. As a result, we seek to evaluate the implications, challenges, and management at the institute/central university's Library in this proposed research work. Before we begin the study, we must first comprehend what activities are carried out, what functions are provided, and how they are administered in a library.

Academic libraries are responsible for providing students, professors, and staff with technical and instructional assistance. As a result, it is a people-oriented career that demands a broad range of expertise. Academic librarians do a wide range of duties, depending on the institution for which they work. Libraries in higher education institutions, such as colleges and universities, are essential and basic components. They assist teachers and students with research while also supporting the curriculum by ensuring that students access the academic library items they require.

1.1 Library

Libraries are a type of service centre. The library is one of the most widely utilised and recognised services in the modern world. The academic community uses a university's library services, especially for research and teaching. Academic tasks can be completed with the assistance of the library. As a result, the library is regarded as the university's heart. As a result, we may say that a library is a location where readers can get all of the knowledge they need under one roof. Universities have complete control over higher education and learning to develop human personalities and the growth of nations. A university provides students and professors with higher education and research opportunities.

1.2 University Library

According to this semi-nation of knowledge, the heart of the university is the university library, which circulates lifeblood through the arteries of the entire university body. "A 'university library' is a library or set of libraries established, maintained, and administered by a university to satisfy the needs of its students and academic staff," according to the Librarian's Glossary.

A library is a collection of printed and written resources that may be utilised for both study and research. Films, microfilms, photographs, records, slides, and other visual media are frequently referred to as "written or printed materials" in libraries. A library can be classified in two ways: by ownership or usage (for example, national municipal or country) or by contents (general, particular, etc.). (This includes medical, legal, religious, scientific, and engineering fields, among others.) If you have a small personal library of books in a public library, you may not require a complicated system with many employees or detailed indexing of the volumes. You may not need more organising beyond a list of books in your library if you do.

1.3 Objectives of the university library

The main objectives of the university library are developing knowledge/teaching support policies, methodologies, and standards for acquisition and access. Create print and online collections leveraging expertise from outside the library to stimulate study. Look into alternative financing options and collaboration opportunities with other groups. Provide services that meet the information demands of university members.

1.4 Major Commissions and Committees of Library

1.4.1 The Library Committee (1957)

After Parliament Act established the UGC in 1956, its first president, Dr. C. D. Deshmukh, analogized that the university's students are the body of a college, the administration is the head, the professors are the soul, and the library is the heart. Dr. Deshmukh was the first chairman. The UGC has taken appropriate action by giving a generous grant of Rs. 1.00.000 to the university and university library. The expansion of higher education institutions and the enhancement of university libraries were among the objectives. Dr. S.R. Ranganathan was named head of the Library Committee, one of the UGC's initial initiatives in this area when it was founded in 1957. Professor S. Bashiruddin was one of the Committee's members and K.S. Hinge, B.S. Keshavan, and S. Parthasarathy. It's also known as the Ranganathan Committee.

For the first time, the Indian government solicited feedback from librarians. The Committee was disappointed to discover that university libraries lacked proper facilities, services, and funding due to a thorough investigation of academic libraries. The Library Committee convened a seminar on "Work Flow in University and College Libraries" in Delhi during the week of March 4-7, 1959, to educate librarians of the results of their study.

The Committee issued a report in 1959 that included concrete recommendations on a wide range of topics, including library grants, book purchases, cultivating reading habits, interlibrary loan services, photocopying, reference and documentation services, microfilm collection development, open access system, and the creation of a union catalogue of books and serials to facilitate library collaboration. Using the calculation, the Committee determined that a library grant should be calculated at Rs 15.00 for each student and Rs 200.00 for every researcher and instructor. A dedicated subsidy should be granted to create a new university's library or a new department at an existing university. The algorithm will be tweaked from time to time to account for inflation or other unforeseeable factors.

The Library Committee also suggested organising a new committee to review library school teaching, examination, and research standards. Instead of relying on part-time librarians, universities should recruit full-time library science instructors (s). A librarian's professional credentials should be indicated. The Committee argued that library workers should be treated the same as teaching and research staff in terms of status and compensation.

1.4.2 Mehrotra Committee (1983)

On December 24, 1983, the UGC appointed Professor R.C. Mehrotra, Emeritus Professor, Rajasthan University, Jaipur, to head a committee that would assess pay rates, career/professional development, and service conditions for teachers in universities and colleges. In October 1985, while in touch with the Indian government and the UGC, the Mehrotra Committee was urged to consider altering the pay scale for librarians and directors of physical education at the same time. The Committee on Revision of Librarian Pay Scales submitted a report to the UGC on September 3, 1986. (CRSL).

1.4.3 Committee on National Network System for Universities / Libraries (1988)

The Planning Commission constituted a Working Group on Modernisation of Library Services and Informatics during the Seventh Five Year Plan (1985-90), which was led by Dr.Seshagiri, Additional Secretary and Department of Electronics. The Working Group predicted that by the year 2000, all special libraries in India would be linked through a computer network. Professor Yash Pal, then-chairman of the UGC, established a National Network System Committee in 1988 to suggest networking action for university libraries and information centres, deemed-universities, nationally significant institutions, UGC Info Centres, R&D institutes, and college bodies. The Committee's main goal was to pool existing resources to maximise the utilisation of holdings and minimise duplications so that a diverse variety of books could be accessed. In the inaugural meeting on April 24, 1988, the Committee resolved to form a working group to provide a project report on the Information and Library Network (INFLIBNET) in three months. The Working Group was made up of experts and officials from various organisations, including libraries, information centres, the computer and communication industries, and others. They began work on June 2, 1988, and completed it on August 31, 1988.

1.4.4 Ranganathan Committee (1957)

In the UGC library committee report, which Ranganathan chairs, university and college libraries are discussed in-depth and relevant. The University Grants Commission published a study in 1959 titled "University and College Libraries." A Library Committee in India undertook to launch a countrywide survey of academic libraries for the first time. It was also the first time the Indian government sought advice on university libraries from a professional librarian, which was an important milestone.

According to the Committee, funds will be provided "at a cost-per-student basis of Rs. 15 per registered student, plus Rs. 200 for each instructor and research fellow." Special library funds should be made available to newly created universities and departments within an existing institution, and college libraries should get a similar level of library support. Library of the University Grants Commission and Proceedings of the Seminar from Publisher to Reader held on March 4-7, 1959) University Education Commission in India, p. Libraries in universities and colleges. To encourage library collaboration, union catalogues for books and periodicals are required. According to the Committee's recommendations, every academic institution should develop an open access system. In addition, the Committee stressed the importance of "that reference service is the vital human activity of connecting the right reader with the right book through personal service. Libraries should have enough reference librarians to serve as library hosts and human converters since they play such an important role in encouraging kids to read."

Building microfilm, and book copying facility, appointing a commission to study teaching standards, examination, and research in library schools, and establishing full-time teachers rather than requesting librarians to teach part-time at library colleges were other recommendations. "Library personnel should have the same rank and salary as staff in the teaching and research departments, i.e., professors, lecturers, and so on," the Committee stated.

When university libraries were later constructed, the Committee's suggestions were reasonably broad. They'd given the UGC not just a structure for administering its grant programmes but also detailed directions for university officials. In this context, proposals for library funding that helped libraries acquire sufficient funding through yearly university subsidies and UGC development funds should be noted.

The suggestions for library personnel and staff strength have given library employees status and salary equivalent to academic professionals and assuring adequate staffing for a variety of library functions. The Committee presented its recommendations to the UGC to serve as a blueprint for its systematic expansion of university libraries. As a result, despite several challenges, such as the Indian Constitution's designation of education as a state concern, university libraries have made significant progress. The quality of these libraries in 1953 was much higher than it was in the 1940s and early 1950s.

1.4.5 Kothari Commission (1964-66)

Under the leadership of Dr. D. S. Kothari, the Education Commission ushered in a new era in Indian university library history (1964-66). As a result, the Commission focused on the expansion of university libraries and provided recommendations in the following areas:

- (i) the financial support norms
- (ii) Plan the library's evolution over the long term.
- (iii) A well-equipped library must be set up before a university, college, or department can begin.
- (iv) Appropriate phase-out of library grants.
- (v) We are encouraging the students to use books as a learning tool.
- (vi) Communication between different fields.
- (vii) Services such as documentation in libraries, etc.

Adult education relied heavily on libraries, and the Commission on Education for Adult Education called for a network of public libraries (CEA). The school libraries were to be combined with the public libraries as part of the adult education initiatives. On June 29, 1966, Dr. D. S. Kothari's assessment noted, "Nothing may be more harmful than neglecting its library and giving it a low priority." No new college, institution, or department should be established until a sufficient quantity of volumes is available in the library. The Radhakrishnan Commission made the startling finding in 1948 that its recommendations had not been completely implemented. Despite the Commission's recommendation that six percent of the overall budget be spent on libraries, just four institutions in India have spent five percent or more of their budget on book and periodicals purchases.

On the other hand, some colleges spend less than 5% of their budgets on libraries. One-per cent some colleges, on the other hand, spend less than 5% of their budgets on libraries. Five institutions spend 1% of their entire budget on library services, which is remarkable. This is a clear example of how inadequately Indian university libraries functioned in meeting the demands of higher education. The Kothari Commission recommended that each academic institution adopt a long-term strategy for library expansion, considering expected enrolment increase, the introduction of new disciplines and research, and other criteria while making its recommendations. The panel also advised encouraging documentation in libraries and appointing specialists to aid scholars, index books, and abstract them. Library services consume a significant portion of the entire budget.

It was also advised that "the book selection should be oriented towards supporting education and research." "Provide library facilities and services required for the success of all formal programmes of teaching; provide resources required for research in university-wide areas of special interest." The Commission also suggested the establishment of monetary norms. As a general guideline, a university should spend around Rs.25 per registered student and Rs.300 for each instructor [of the entire budget] each year, depending on the level of growth of each university library. "Foreign exchange essential for university and college libraries should be approved independently from the UGC," another recommendation was made.

1.5 Library services

The delivery of library services in the post-COVID-19 period is likely to change dramatically. In-person support could probably be reduced, but remote and internet services would be expanded. Patrons of the library may be encouraged to submit queries and suggestions to the library over the internet rather than meeting with library staff members in person. Hopefully, as time passes and the virus's influence lessens, this component will return to its previous state."

1.5.1 Remote access service

The library must provide remote access to its subscription resources to its users to stay competitive. With most classes taking place online and many faculty members and other academicians working from home, the library must provide remote access to its subscription resources to its users. Virtual private networks (VPNs), proxy technology, and leased lines are the most standard technologies used to expand this service.

Academic libraries in India primarily use virtual private network (VPN) systems or proxy technologies such as OCLC's RemoteXs or EzyProxy to deliver this service. Even if an academic institution requires a high-quality ICT infrastructure, and even though implementing a VPN system is not expensive, it is necessary on the institution's side. It's possible that the following material isn't available in every school or college library. On the other hand, the subscription resources may help institutions roll out services more smoothly, but they are a recurring investment for them.

The provision of remote access for users, on the other hand, does not solve the access problem. Because some Indian publishers have been unable to connect this service to their online resources, this is the case. Although the library provides remote access to some Indian

online resources, users may be unable to access these items in some cases since some Indian publishers lack suitable ICT infrastructures.

1.5.2 Importance of library website

Another significant aspect of this new situation is the distribution of digital documents to library patrons and the supply of online resources to library patrons. As a result, the library has an opportunity to raise user awareness about the importance of the library's website as a source of information about all of the library's services, print-to-digital assets, and online resources. It might be good to enlighten users about the numerous ways their library can assist them in their teaching and learning endeavours.

1.5.3 Importance of digital resource management

Academic librarians have been familiar with digital document management for quite some time after creating institutional repositories using open-source DSpace, ePrints, and other digital assets management technologies. Their institutes would benefit from their help with maintaining digital copies of lecture notes, question papers, and presentations in institutional repositories and other comparable systems. As the significance of institutional repositories grows, libraries that have not yet established them should consider highlighting the library's relevance to the institute fraternity. It's feasible that all of these elements may help them claim a more significant portion of the library budget in the future, allowing them to introduce new and innovative services in preparation for a changing environment.

1.5.4 Demand for scanning service

Users may request digital copies of book chapters from their recommended textbooks due to a shortage of an appropriate number of online or digital editions of texts, particularly in universities. Libraries will be asked to supply soft copies of relevant book chapters, which will have been scanned from the appropriate volumes, to satisfy this demand. As a result, librarians may be obliged to build a scanning facility if one does not already exist in their library.

1.5.5 Assistance in online learning

Most classroom instruction at our higher education institutions is now delivered over the internet. Some of our research institutes had virtual classes, which was a great bonus. This extraordinary transfer of classroom education to the online media, on the other hand, took place for the first time in our country. By maintaining files in institutional repositories and providing suitable metadata to them, the library may be able to aid teachers in managing digital copies of presentation files, class notes, lecture videos, and other resources. If students have access to this information, they may retrieve these digital course materials more readily. As a result, the library will support and contribute to the institution during the whole process of designing, arranging, and delivering online training to students.

1.5.6 Lending of digital access tools

The availability of online reading resources may not be enough to help our pupils overcome their obstacles in obtaining these materials. Due to our country's socioeconomic position, many students may not have the digital tools to access these internet resources. Consequently, the library's assistance in lending access equipment like computers and e-book readers may help students learn in the new average era of information technology. In this circumstance, the financial consequences of delivering this sort of service are a substantial roadblock. The government's response, in this case, is essential. In a country like ours, school libraries are even more in need of these digital tools to aid students, particularly those in financial hardship.

1.5.7 Training on information literacy

As students move away from traditional classrooms and into online learning environments, their need for information literacy skills will grow. As a result, librarians may need to give sufficient information literacy training to their patrons. To achieve this purpose, library staff can either prepare for online classes or publish videos of various information literacy skills, as appropriate. These may include, among other things, instructions on how to access specific databases or how to set up a VPN system on their laptop.

1.5.8 Open online educational resources

In recent years, the amount of free online course materials has increased dramatically, with new materials being posted regularly. In this situation, the library may play an essential role

in marketing these freely available online course resources by collaborating with other groups. These have the potential to aid institutions in giving vital texts to their students more quickly and save them money by reducing the need to acquire large amounts of books for a large number of students. In light of what has been said so far, students and instructors may give library websites the attention they deserve as a doorway to all of the material they require for their studies and teaching.

1.5.9 Open access to research

The pandemic has presented a unique dilemma for the library community and an opportunity to increase public awareness about the benefits of free access to information in the research community. The challenge for librarians is to reach out to researchers and educate them about the importance of publishing their research findings in open access journals so that everyone may read them. They must inform the general public about the consequences of publicly available study findings to aid people in understanding how to prevent the virus from spreading further. As a result, the current situation provides librarians with a chance to promote awareness of the importance of open science among members of the research community. The contemporary scientific culture, which arose due to the COVID-19 , exemplifies this.

1.6 Collection Development and Management

Librarians strive to provide collections, resources, and services that cater to their target users' cultural, informational, educational, and recreational interests. Because libraries' primary objective is to accommodate the different demands of their target customers, this is the case. In response to evolving user requirements due to the growth of information and communication technology, libraries have redefined their resources, operations, and services. Choosing the most significant and most extensive collection possible in a library is a crucial and challenging endeavour. The process includes selecting, purchasing, and paying for information resources.

1.6.1 Meaning and Concept

Collection development is described as the systematic and essential process of building a library collection to suit the teaching, learning, and research objectives of its intended users: The practice of expanding the amount of reading material accessible to fulfil the demands of the library's targeted consumers is known as collection development. As part of their

collection development activities, libraries provide high-quality information resources in print and non-print media and access to electronic resources. Librarians and library staff continue to develop their collections regularly, with input from academics and students.

Students at Indian colleges and universities rely extensively on print resources for several reasons. The fact that many Indian textbooks and study materials are only available in print format is one of the reasons behind this. The money given to academic institutions' libraries for online material acquisition is inadequate.

The need for printed materials is dwindling. Due to an impending emphasis on limited person-to-person connection and the risk of spreading the virus through surfaces such as books, library administrators may be obliged to dissuade library patrons from coming. It makes it more difficult for users to use the library's print facilities. Furthermore, the readers will likely be issued later than initially planned because the books and other printed materials may be kept inactive before being returned to the shelves.

The need for internet-based content is growing. There are 53,620 higher educational institutions, 14.04 lacs professors, and 3.50 crore higher education students in India. In the United States, there are believed to be 993 universities and colleges and 10,726 independent institutions. 97 Centrally Funded Technical Institutes (CFTI), 217 universities, 89 technical institutes, 3200+ colleges, and others are among the institutions that receive government aid in accessing online resources for their teachers and students. There is a considerable gap between consumers who desire internet services and those who utilise them.

Furthermore, 3132 colleges participating in the N-LIST programme have access to some e-books²⁹, and 217 universities and 186 other technical institutes (of which 97 are Centrally Funded Technical Institutes and 89 are AICTE-funded members) have access to some online resources through e-Shod Sindhu, in addition to the 89 AICTE-funded members. Electronic resources will continue to be in high demand across the world.

Yale University declared earlier this year that beginning in 2020; they will prioritise the acquisition of electronic books over physical books. Nonetheless, the library budget is projected to be impacted for the foreseeable future due to the pandemic-induced economic hardship suffered by all countries. The library management will have a complex problem in the coming months: combining the need for more e-books with a budget that has been slashed.

It's also difficult for libraries to strike a balance between fairness problems and delivering digital information to their patrons. The pain is particularly acute in the case of online textbooks, and new editions of these publications are issued more regularly than recent editions of reference books. When it comes to acquiring textbooks for academic libraries, they typically adopt unique licence terms and pricing techniques that are occasionally harsh. In other words, even if an academic library decides to acquire e-textbooks, the decision may put a significant burden on the library's budget.

This emphasis on online and digital resources, on the other hand, may reveal a previously concealed imbalance in library budget allocation across science, social science, and humanities. It's no secret that resources related to science are more freely available in digital format and are used more frequently than those related to social science and the humanities. Teachers in the social sciences and humanities are hesitant to use digital materials in their classroom curriculum.

This is said to be due to a lack of alignment with the teaching method used, diverting attention away from the teaching approach, allowing students to copy assignments from the internet, a lack of information literacy on the part of students, the ability to use materials outside of their context, and so on. As a result, the library authority's responsibility in this challenging economic situation is to allocate the few financial resources available across all of the themes.

However, not all necessary materials are currently accessible online or in digital format. As a consequence of continued demand, some currently print-only resources may be made available in digital format via online platforms by publishers in the future. However, it's probable that not all publishers, particularly those in India, would be able to convert their whole backlists to digital format shortly, at least in part. Traditional academic resources give a different sort of problem than archival materials.

There are a lot of archival records, especially in Indian languages, and many of them aren't available online or in digital format. As a result, consumers' desire for digitisation will rise for them to continue to have access to those historical records in the coming days. However, in school libraries and, to a greater extent, in schools teaching in Indian languages, the lack of study resources in online or digital format in those local languages is more significant than in other types of higher education institutions.

1.7 Objectives of the study

The following aim and objectives are concerned for this research work.

- To Know how covid-19 effect library management in Indian Institute of Technology, Roorkee.
- To explore how the library provides services to the end-user at the time of covid-19.
- To find out the difficulties faced by the library personnel while providing the library services.
- To know what are the new changes done by the library during covid-19.
- To find out the challenges faced by the central library during covid-19.
- To analyze the services offered by the central library at covid-19.

1.8 Significance of the study

This study aims to see how the Covid-19 has affected educational tasks. It will seek to address the outbreak's consequences by presenting new technology breakthroughs and how a library can be administered during such a tough time so that the learning process may continue uninterrupted.

1.9 Statement of the Problem

The problem chosen for the present study is **entitled, "Management effectiveness in Central library of Indian Institute of Technology, Roorkee during Covid-19 Pandemic Situation: An Analytical study."**

1.10 Hypotheses

- Indian Institute of Technology, Roorkee library delivers all of the services to the user while also adhering to all of the covid-19 protocols.
- During covid-19, the Indian Institute of Technology, Roorkee personnel made adjustments in the library to serve the users better.

1.11 Scope & Limitations of the study

The research was limited to the Indian Institute of Technology (IIT) Roorkee's core library. Only library professionals and other library staff from the Indian Institute of Technology (IIT) Roorkee were included in the poll.

1.12 Research Methodology

The survey approach is a systematic study strategy for cost-effectively acquiring a massive amount of data from a broad population. A questionnaire was used to collect data as part of the survey approach. The Indian Institute of Technology (IIT) Roorkee's Central Library has been visited by researchers. Only the employees of the central library were chosen as responders. Only 18 of the 21 answers, including the librarian, were received by the researchers. The data were analysed using SPSS software, Google Sheets, and Google Docs.

1.13 Chapterization

The study has been organized in the following chapters:

- Chapter 1: Introduction
- Chapter 2: Review of Literature
- Chapter 3: Institution Profile
- Chapter 4: Covid-19 Outbreak in India
- Chapter 5: Data Analysis & Interpretation
- Chapter 6: Conclusion, Findings & Suggestions
- Bibliography & Appendix

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CHAPTER – 2
REVIEW OF LITERATURE

CHAPTER 2

REVIEW OF LITERATURE

2.1 Introduction

The most crucial stage in creating a new research subject is to conduct a comprehensive review of the relevant literature. It is required to discover, evaluate, and analyse relevant research articles and reports of casual observation and opinion for inclusion in the assessment of linked literature. To conduct a worthwhile study in a particular discipline, the researcher must thoroughly understand previous work done in that field.

The researcher must be up to speed on what has been done in the field in which his study is being conducted. In summary, this chapter presents an overview of research conducted both abroad in India, sorted in chronological order by topic matter. The investigator reviewed many studies comparable to the current research before making a recommendation.

2.2. Review related with management & services in libraries: To assess the study problem and create the research design, the following literature was studied. The publications published between 2021 and 2001 were reviewed by the researcher.

Rafiq, Batool, Farzand, and Ullah (2021) studied the importance of libraries in difficult times, as the Covid-19 outbreak causes us to rethink our lifestyles and daily routines. The Covid-19 incident has brought attention to the relevance of electronic resources and internet access in education. Libraries must also evaluate their internet presence, and library administrators must acknowledge their individual and collective societal and community duties.

Tunga (2021), Because of the COVID-19 pandemic lockdown situation and significant dramatic technological changes in the academic environment around the world, library collections are no longer limited to print resources; electronic resources are rapidly growing in popularity, making it critical to develop a digital library. Academic libraries on the internet have improved their digital resource management and digitalization capabilities. During the COVID-19 , information societies seek digital information from our university libraries. As a result, academic libraries play a critical role in collecting, storing, analysing, interpreting, and distributing digital resources to current library users. This article has

provided opportunities to learn about various advancements in digital libraries, such as digital library planning, required skills for digital libraries, digital library initiatives in India, benefits of digital library resources; and challenges and opportunities of the COVID-19 pandemic environment to maximise the use of digital resources and digital services in worldwide lockdown and pandemic situations prevailing in our country.

Comeaux, Connel, and Wallis (2021) Higher education, particularly academic libraries, has been severely damaged by the COVID-19. This study analyses how three university libraries used library resources before and during the pandemic (including interlibrary loan, website and discovery tool page views, database use, patron interactions, and so on). The periods of interest are the latter half of the 2019 and 2020 spring semesters. Two control timeframes from earlier in both semesters are utilized to see how the semesters altered when the corona virus was not a concern. Across several indicators, the institutions saw comparable patterns of use.

Babbar and Sukula (2020) The current pandemic Covid-19 issue has changed the landscape of libraries. The entire method that libraries provide services has changed due to non-contact user assistance. Technological advancements have proven to be a benefit for libraries in this regard. The purpose of this study is to illustrate the varied viewpoints and support systems available in academic libraries. The JNU library was used as an example of how remote access-based services might be beneficial and other vital contemporary difficulties and solutions.

According to Jena & Kumar, Pravan (2020), online learning is a unique way to learn. While upgrading and inventing new technologies that help online learning, we can reduce the dangers of online teaching. The author underlines the chance we have during this terrible pandemic moment and how we may improve any topic, including schooling.

During the COVID -19 pandemic, technology became a saviour for India's major technological institutes, according to Dadhe and Dubey (2020). Based on the information published on their web pages, the research investigates the types of services given by Indian Institutes of Technology (IITs) libraries. The study focuses on the critical actions performed by libraries, which others may replicate to address post-lockdown demands.

Mabuie (2020). This study examines the role of libraries in the supply of information resources during the COVID19 pandemic, which began at the end of 2019. Public health specialists' recommendations have had a global influence on all activities. They inhibit social

convergence by encouraging individuals to work from home, avoid congested areas, and close schools and other social institutions, such as libraries. The changes have impacted general, institutional, and research libraries, mainly through the closure of physical libraries. They have had to alter their operations to assure the continuity of their services. Libraries have relied on technology and communication connections to maintain service continuity. Libraries have also had to adjust their content and services to meet the public's need for pandemic information and research tools. A content analysis tool was used to obtain qualitative data for this study. The material was gathered from the websites of 20 US libraries and analysed to develop themes from the content and evaluate how the libraries are contributing to the COVID-19 response by offering information resources. The findings of the study show that libraries have played an essential role in providing accurate information to the public, researchers, and health officers, as well as in ensuring the continuity of learning, raising public awareness, emphasising the importance of adhering to public health measures, and providing a platform to keep the public engaged even when they are at home.

Bilawar (2020) The current paper presents an overview of the Corona-Covid-19 virus, the lockdown period, and a compilation of online/live academic/learning programs/activities provided by various universities, colleges, and associations/institutions during the lockdown period that served as information sources to engage students and teachers/faculties in their teaching, learning, and extension processes in India, with a focus on Library & Information Science online events. The results reveal that 377 webinars were held on various subjects/themes by multiple institutions during the lockout period, followed by FDP (36), Workshop (26), Quiz (19), Training (7), and STC (3), among others. In comparison to other online events, the growing number of webinars suggests that webinars are the most popular. Except for one training session, no Workshop, Virtual meeting, or short-term course were scheduled with the title 'Covid-19/Corona, Lockdown.

Perrine (2020) revealed in his study article that the usage of online databases has grown by 75 percent due to the COVID-19 's library closures. Another example is the Middletown Township Public Library (MTPL) in New Jersey, which released more than 3000 volumes on the day before it closed due to the , which was considered "extremely extraordinary.

According to Brown's research study, libraries in the United States of America have closed their physical library facilities and have opened their digital doors to their consumers.

The American Library Association (ALA) has chosen to cancel its annual convention for the first time in 75 years as an extra step to battle the pandemic.

The essential contributions performed by librarians and information professionals during the COVID-19 pandemic in Pakistan were discussed in depth in Ali and Gatiti's (2020) study, "The COVID-19 (Coronavirus) Pandemic: Reflections on the Roles of Librarians and Information Professionals." The study looked at the role of health science librarians in particular during the . Library professionals' primary tasks were to enhance public health awareness through public health education and to provide research and student access to library resources. The experts' key objectives were to promote public awareness about public health, support researchers, students, and teachers at the university, and give critical assistance to individuals in need at this time of crisis.

In their study paper "Role of Library Professionals in a Pandemic Situation Like COVID-19," Bhati and Kumar (2020) looked at the different roles played by librarians during the COVID 19 pandemic. The poll revealed a wide range of digital platforms available all around the world. The report also urged librarians to use the various social media networks at their disposal. It emphasised specifically that librarians may aid the general public in their quest for intellectual content.

Patil and Chingath's (2020) study, "Use of Social Networking Sites by Karnatakites for Finding Knowledge Regarding COVID-19 - An Investigation," looked into how Karnatakites used social networking sites to learn about the COVID-19 pandemic. On a web-based platform, a survey was performed, and data were collected from individuals who were mainly targeted for the study. The majority of the targeted participants were active on social media sites such as WhatsApp, YouTube, and Facebook, according to the conclusions of the study paper.

The great majority of responders (48.8%) thought the information supplied on social media platforms for COVID-19 was handy and up to date. Furthermore, most respondents said that using social networking sites was very helpful in accessing vital information concerning the COVID-19 outbreak, according to the survey's findings. The study is the first of its kind to look at the use of social networking sites (SNSs) among Karnatakies to learn more about the COVID-19 pandemic.

Fallows (2020), the author, claims that earlier pandemic preparation programmes have provided libraries with vital information and attention. They are rapidly transitioning to new

modalities of providing general public services, which is key to their purpose. When libraries were forced to close their doors abruptly, Fallows continues, they immediately opened their digital platforms, collaborations, and creative activity to reach the public in ways that were as innovative as the virus that forced them to close their doors in the first place, resulting in the development of new methods, resources, and services.

According to Sheikh (2019) in his article "Application of Information and Communication Technology in Libraries: Prospects and Challenges." The value of information and communication technology (ICT) in today's society gives users high-quality information. The myriad difficulties and recent breakthroughs in the field of technology in libraries and the necessity to provide training opportunities for librarians and other library workers were discussed in this research study.

Pandey and Velayudhan Pillai (2011) published a book that describes the output analysis of university libraries, which can be found here. The book also looks at librarians' commitment to their jobs and librarians and library professionals' work satisfaction. This book discusses how to improve the overall quality of libraries, change laundry materials and services, and how landscapes affect library consumers' perceptions.

According to Gavgani, Shokrane, and Shiramin (2011), Iranian librarians lack traditional skills and essential background knowledge to suit their clients' changing needs. Before empowering their customers, they must first empower themselves by learning new skills and receiving further training. As a result, there must be no misalignment between librarians' professional/technical skills and the informational expectations they must satisfy. It was also thought Iran's medical library and information science curricula needed to be updated.

There are no standards or criteria for librarian education in India, according to Dasgupta (2009), who investigated the subject. The emergence of new Library Integrated System schools, insufficient faculty strength, and a lack of accreditation bodies, as well as a lack of proper library facilities, inadequate physical facilities, a lack of attention to selection criteria, and a lack of apprenticeship programmes, were all identified as issues for Indian librarians in his research. The Indian government should boost LIS education in India by increasing the number of job possibilities for LIS experts and closing the salary gap between LIS specialists and other professions, according to the study's findings.

Ademodi and Adepoju (2009) conducted a study in university libraries to assess the level of computer expertise among librarians. According to the findings, professionals'

computer knowledge and abilities were found to be lacking. According to the study's findings, Nigerian university libraries should devote more time and money to teaching and procuring ICT infrastructure. The Library Administration recommends that it seek financial and technical assistance from international agencies or foundations that specialise in computerization.

Singh (2009, Ed.) provides a detailed discussion of information resources in his book, which also includes information on the administrative functions of libraries, the relationship between libraries and education, motivation in libraries, material collection, documentation, and information in libraries, as well as a detailed discussion of information resources.

Sahai (2009) goes into additional information about the academic library system in this book. He has attracted the interest, concern, and support of these individuals, all of which are vital for the growth of college and university libraries in the country and highlighting the importance and significance of libraries for university and government administrators and faculty members. In the twenty-first-century knowledge race, India enjoys a significant advantage. It has a primary higher education industry, the world's third-largest behind China and the United States in terms of student numbers.

According to Thanuskodi (2009), the library is the most potent instrument for collecting and using our intellectual past, which is confirmed by research. Formal education can only be adequately and efficiently carried out through well-equipped libraries. Libraries now have access to many Internet-based services, making them a helpful resource for their users. The growth of electronic resources is quickening.

According to Siwakoti (2008), there was no government entity in Nepal in charge of overseeing, monitoring, and assessing school libraries' operations. There were various issues, including a lack of public awareness campaigns, funding constraints, insufficient space, insufficient library goods, a scarcity of trained and competent workers, a lack of effective government policy, and a lack of information literacy among the general people.

Mittal (2007) has gone to great length about practically every facet of the library system, including in-depth discussion, theoretical explanation, and case studies. He covers the philosophical basis of librarianship and library education and librarianship's ethical roots in the first chapter. This section covers the theoretical foundations of library administration and management, including the role of libraries and the authority and committees that supervise them. Part-technical III's services cover everything from book selection and

acquisition to processing work and stack correction. Part-maintenance IV's services encompass everything from library preservation and conservation to caring for the library's books, as well as building maintenance and repair and equipment.

The numerous characteristics of reader services, such as reference services, periodical works (including subscriptions), circulation, library rules and regulations, and the appropriate use of library reading materials, are among the themes covered in Part V. (including books). You'll discover information on everyday office activities and library records throughout Part-V of this book (annual papers, library statistics, and surveys). Part VII examines computers and their potential use in libraries. Libraries are the focus of Part VII. Consequently, the library system may use this book as a complete resource.

Rahman, Khatun and Islam evaluated library education in Bangladesh (2008). According to the survey's findings, most Bangladeshi educational institutions lack well-equipped computer laboratories or a sufficient quantity of computers for pupils. The researchers did not have access to an adequate number of categorization and cataloguing tools (DDC, LC, and Sears list of topic headings for practical reasons). In many circumstances, the institution does not have a library or just has a small number of textbooks. Furthermore, the professional's employment was highly low-paying with limited growth opportunities.

Tripathi and Srivastava (2012) developed a library management software system to monitor and regulate transactions in a library. They built a Library Management System in Java that primarily focuses on fundamental library activities, such as adding new members, new books, and updating further information, searching for readers and members, and the ability to borrow and return books, as a result of their study (among other functions).

These two individuals worked together to design an automated Library Management System. Using computer software, the user may quickly add members, add books, search for members, search for books, update information, edit information, borrow, and return books. Some of the benefits of the system they devised are as follows. With the easy-to-use user interface, the database is more accessible, and there are fewer inaccuracies. More storage space, a search tool, and a more aesthetically pleasing environment are desired characteristics. The manual obstacles connected with running the library were eliminated by adopting computerization. The programme can help users preserve and organise their libraries because it is user-friendly for both novices and specialists. As a result, the research's

system requirements include how the library management system developed may be utilised on various platforms, including Windows NT and Applet Macintosh, as well as Windows 98 and Windows 2000. The system, which operated on Windows 98 or Windows NT4.0, fulfilled these hardware requirements.

In their study to develop an updated database of books and other library resources at Bharathidasan University's School of Chemistry Library, Neelakandan, Duraisekar, Balasubramanian, and Srinivasa (2010) used KOHA Open-source software to implement an automated system using KOHA library integrated Open-source software to carry out better charging and discharging functions in the circulation section. KOHA is described as a comprehensive software system with all the essential models for small and big libraries (Neelakandan et al., 2010). The results of their system development are chemistry library collections in a single database, complete control over library collections and operations, faculty members searching and research scholars checking the required books by OPAC modules, researchers checking the status of their borrowed books, and data entry of the books. When researchers and faculty members study the quality of their borrowed books, they may find out all they need to know about the books for their next project.

Adil (2020) focused in his study on the development of innovative service models and the implications of technology for libraries during the COVID-19 pandemic crisis. Moreover, the author said Pakistani librarians could provide assistance to library users by gathering a variety of online e-resources on library websites, conducting online information literacy programs via social media, and building online institutional repositories and library guides. Although no definitive research study has been conducted to date on the response of university libraries to the COVID-19 pandemic-related physical closure of the libraries, there is some evidence that they did so.

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CHAPTER – 3

**INSTITUTION PROFILE : INDIAN
INSTITUTE OF TECHNOLOGY, ROORKEE**

CHAPTER 3

INSTITUTION PROFILE: INDIAN INSTITUTE OF TECHNOLOGY, ROORKEE

3.1 INTRODUCTION

The Indian Institute of Technology (IIT) Roorkee is one of the world's oldest engineering colleges. In 1847, the Roorkee College of Civil Engineering was established to teach local engineers for the ongoing Ganges Canal project. The institution was renamed the Thomason College of Civil Engineering in 1854, after its founder James Thomason. Thomason College was renamed Thomason College of Engineering after adding the departments of Electrical Engineering and Mechanical Engineering in 1945. Throughout its century-long history, it has produced countless brilliant engineers and technocrats and established new benchmarks of excellence. The Thomason College was intended to play a significant role once the United States acquired independence from Great Britain in 1947. On November 25, 1949, first Prime Minister Pt Nehru, who inherited this engineering Mecca, christened it UOR. Indian Institute of Technology (IIT) is a technical institute in India Roorkee was founded in 2001, when the country's Parliament formed Uttarakhand as a state. The Institute, founded in October of 1866, celebrated its 150th anniversary in October of 1996. The Indian Institute of Technology was classified as an "Institution of National Importance" by a Government of India Ordinance (later an Act) dated September 21, 2001, making it the country's eighth such institution. The Institute provides Bachelor's Degree programmes in ten engineering and architectural disciplines and Postgraduate Certificate programmes in 55 engineerings, applied science, architecture, and planning areas. Master's degree programmes in ten engineering and architectural areas are also available at the Institute. The Institute's Departments and Research Centers are all suited to accommodate doctorate studies.

The 380-member faculty of IIT Roorkee is both highly qualified and highly motivated. They also perform research and consulting in addition to teaching. Members of the academic staff use their collective skills to deliver advisory services to commercial and public sector enterprises and government entities. The university has around 3900 students, 2000 postgraduates, and about 1100 research researchers.

Interdisciplinary research is conducted by many academic and research institutes in India and abroad, and several partnership initiatives exist. The Central Library has more than 3.74

million volumes and periodicals and Internet access and a modern computer centre. Cutting-edge analytical equipment is housed in the Institute Instrumentation Centre. Students are prepared to confront ever-increasing technical and societal issues thanks to the Institute's traditions of self-discipline, hard work, overall personality development, and imaginative problem-solving approach. IIT Roorkee is genuinely a residential campus, with well-designed boys' and girls' hostels (Bhawan), a huge sports ground, a leisure centre and hospital, a modern swimming pool, and an assortment of equipment for various hobbies such as racquetball and squash. Numerous organizations and activities, such as NCC, Ranger and Rover Training (R&R), climbing, and trekking, provide excellent opportunities for personal development.

3.2 HISTORY

The Institute has an illustrious past and an illustrious history. Thomason College, an Indian engineering school, owes its birth to the Ganges River. If the river did not flow, there would be no Ganges Canal and no Roorkee College. The Ganges Canal was built swiftly, but Thomason College, made by intelligent and foresighted individuals, rose progressively from humble beginnings to become one of the East's top educational institutions, with long traditions and a reputation second to none.

Colonel Cautley of the Royal Artillery, who had been Superintendent-General of Canals since 1836 and was working on a scheme to use the Ganges waters for irrigation, first proposed by Colonel Colvin of the Bengal Engineers, proposed the establishment of an Engineering college at Roorkee to the Honourable James Thomason, Lieutenant-Governor of the North-West Provinces, around 1846. Without a doubt, the immediate need for engineer officers and subordinates to work on construction projects in India's Ganges Canal influenced Mr. Thomason and his advisers. Still, other factors, such as the need for civil engineers to be adequately trained in India, or at least in Northern India, are also likely to have played a role.

The Western and Eastern Jumna Canals were completed in 1817 and 1822. These enterprises spent Rs. 1,000,000 on formation and Rs. 35,000 on repairs every year in 1847. In Dehra Dun, Rohilkhand, and the adjacent areas of Delhi, drainage and irrigation projects required skilled supervision. All of the key highways, including those linking Jabalpur and Mirzapur, Calcutta and Delhi, and Agra and Bombay, had been completed and the Land Revenue Settlement Survey. It was evident that there was a great need for competent professionals in

every field of Civil Engineering. Officers of the Army, European non-commissioned officers and troops, and Indians were on hand to assist in the fulfilment of this necessity.

To convert these labourers into effective agents in India, newly arrived Europeans needed to acquire Indian languages and construction idiosyncrasies. The Indians might be powerful weapons if they were well-trained and motivated by a proper sense of duty, just as the European troops had to be, because of their local knowledge and ability to tolerate the environment.

Lieutenant Baird Smith of the Bengal Engineers, who was then Superintendent of the Eastern Jumna Canal at Saharanpur, India, started this class in 1845 with twenty pupils to teach young Indians in Civil Engineering for the grade of Sub-assistant Executive Engineer. Governor-General Lord Hardinge opted to move on with the Ganges Canal project after the First Punjab War ended in 1847.

Engineers met various hurdles even in the first few miles of the course. The people, as well as the country's talent sector and resources, would indeed be strained. The science necessary to construct such a vast endeavour would be constantly updated and enhanced during the project's existence.

It was vital to act quickly to ensure that there was always a consistent supply of competent Engineers accessible. The Roorkee College (later called Thomason College) was founded due to this dilemma. As a result, on September 23, 1847, a proposal was sent to the Governor-General stating the reasons for establishing the College in Roorkee.

The Roorkee installations that are currently emerging along the Solani Aqueduct of the Ganges Canal give unique chances for civil engineering education.' Many important workshops and structures are now being built, and there is also a library and a model room. Furthermore, several highly trained and experienced officers are constantly on standby, whether permanently stationed or temporarily deployed overseas. These officers, who all have their own essential and absorbing jobs to do, have no time for the meticulous and methodical instruction necessary to create a competent Civil Engineer.

As a result, the Lieutenant Governor suggests establishing a civil engineering school in Roorkee, which the local government's Education department would oversee.

There were three departments listed in the college's prospectus, and the First Department was where candidates for Sub-Assistant Civil Engineers were kept. Applicants had to be under 22,

read and write English well, and have a strong foundation in math topics such as geometry, algebra, conic sections, and physics.

A maximum of eight persons might be admitted each year. European Non-commissioned Officers and Soldiers were assigned to the Second Department after completing a basic admission exam in Reading, Writing, Simple Drawing, and Very Simple Mathematics. Each year, just ten persons were permitted in. These warriors underwent extensive training to become Overseers in the Department of Public Works. The Third Department was set aside for young Indians who sought free tuition in Surveying, Levelling, and Drawing (SLD). These individuals needed to be literate in Urdu and have a basic grasp of mathematics. Only 16 places were available each year, and those who passed the admission exam received certificates. All classes took yearly tests to verify that pupils were prepared for the forthcoming school year. Even though the course durations were not specified, it is assumed that the Second Department course lasted just six months.

3.3. Vision

We use cutting-edge scientific and technical research to establish a worldwide level of excellence in education and develop a more equitable and sustainable society.

3.4. Mission

Creativity, innovation, and entrepreneurship must be encouraged in an environment that fosters the development of individuals with intellectual capacity and those who can collaborate with industry to progress science and technology for the benefit of the country and the whole human species.

3.5. Core Values

Honesty and accountability in the classroom.

Tolerance and respect for the differing viewpoints of others.

They are paying attention to both domestic and international matters.

- Knowledge of the humanities and social sciences.
- Appreciation for high levels of intellectual and artistic achievement.
- A spirit of learning discovery, skepticism, and initiative that knows no bounds.
- Social responsibility awareness is a virtue.

3.6. Departments

With the most academic units per student, IIT Roorkee is one of the country's primary technical schools. The university's 23 theoretical departments span engineering, architecture, planning, and humanities and social sciences. A school, three academic centers, eight academic service centers, and three supporting units are also present.

- Architecture and Planning
- Applied Science and Engineering
- Biosciences and Bioengineering
- Chemical Engineering
- Chemistry
- Civil Engineering
- Computer Science and Engineering
- Design
- Earthquake Engineering
- Earth Sciences
- Electrical Engineering
- Electronics and Communication Engineering
- Humanities and Social Sciences
- Hydrology
- Hydro and Renewable Energy
- Management Studies
- Mathematics
- Mechanical and Industrial Engineering
- Metallurgical and Materials Engineering
- Paper Technology
- Polymer and Process Engineering
- Physics
- Water Resources Development and Management

Academic Centres

- Centre of Excellence in Disaster Mitigation & Management (CoEDMM)
- Centre for Transportation Systems (TRANS)
- Centre of Nanotechnology

Academic Service Centres

- Continuing Education Centre (CEC)
- E-Learning Centre
- Greater Noida Extension Centre IITR
- Institute Computer Centre (ICC)
- Institute Instrumentation Centre (IIC)
- Mahatma Gandhi Central Library
- Rethink! The Tinkering Lab
- TIDES Incubation Centre

Other Supporting Units

- Institute Hospital
- Intellectual Property Rights (IPR) Cell
- Water for Welfare: An Uttarakhand Government Initiative

3.7. Mahatma Gandhi Central Library



Source: mgcl.iitr.ac.in



Source: mgcl.iitr.ac.in

About Mahatma Gandhi Central Library:

The Institute's MGCL plays a unique position in the worldwide academic library environment, and it's a combination of classic and modern components. Despite being one of the country's oldest academic libraries, it is housed in a contemporary 80,000 square foot building with central air conditioning and the latest information and communication technology (ICT) breakthroughs.

Around 500 people will use the library, which is equipped with a security system and has been aesthetically designed to provide a comfortable and convenient environment. The amount of natural light provided by the structure is its key selling feature for activities such as reading. It uses RFID technology to give services to clients that do not require human participation. It provides seamless Wi-Fi access throughout the building in addition to cable connectivity for over 200 PCs. The imaging facility has two Minolta Planetary Scanners on standby to digitize documents for the Institute Repositories "Bhagirathi" and "Shod-Bhagirathi," which store Institute archive materials, theses, dissertations, and other precious publications.

The Commitments:

The Mahatma Gandhi Central Library will use cutting-edge information and communication technology to provide high-quality library and information services to its clients, contributing to its overall strength.

This goal can be reached by doing the following:

- Maintaining an ISO 9001:2008-based quality system.
- They are increasing and maintaining high levels of user satisfaction through data analysis based on surveys and user feedback collected internally.
- Continuous improvement of our human resources' skills, motivation, and encouragement.
- We maintain a safe workplace and comply with all applicable laws and regulations.
- We are developing a balanced scorecard with concrete goals to help us grow and improve our position in the search results.

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CHAPTER - 4
COVID-19 OUTBREAK IN INDIA

CHAPTER 4

COVID OUTBREAK IN INDIA

4.1 Introduction

The COVID-19 virus, caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV2), initially appeared in late 2019 in Wuhan, China, and quickly spread worldwide. The World Health Organization (WHO) had received reports of about 67 780 361 COVID-19 cases and 1 551 214 fatalities as of December 9, 2020, with cases recorded in over 220 countries or territories. The total number of persons infected with the Coronavirus in India had reached 9.74 million as of January 30, 2020. This comes roughly eleven months after India's first case of the virus was identified in Kerala (Kumar et al., 2020). As a result, the number of cases recorded across the country has risen drastically in all states and union territories. India's population is relatively modest, but the rapid expansion in absolute numbers threatens to overwhelm the country.

With this unique coronavirus, India's economic, medical, and public health infrastructure is struggling to cope. The country's Gross Domestic Product (GDP) fell at the quickest pace in history, by 23.9 percent, from April to June, when the Coronavirus brought the country to a standstill. Following the World Health Organization's (WHO) announcement of COVID-19 as a global health emergency in January 2020, the pandemic is estimated to cost the world \$90 trillion in combined global public health and economic disasters (Global Economic Effects COVID19, 2020). This is in addition to the pandemic's health-related impacts.

The Covid-19 pandemic has driven human civilization to maintain a culture of social alienation after spreading over the globe. It has had a particularly significant influence on the education sector, a vital predictor of a country's economic future. On February 11, 2020, the World Health Organization (WHO) approved a name for the virus, using the acronym COVID, which stands for Coronavirus Disease 2019. It was detected for the first time on December 31, 2019, in Wuhan, China.

In 2020, a 61-year-old man from Wuhan, China, became the first person to die as a result of COVID 19. The World Health Organization (WHO) named COVID-19 a pandemic in 2020. According to the WHO, the first case of the COVID-19 pandemic was discovered on January 30, 2020, in Kerala, and the infected individual had travelled to Kerala from Wuhan, China (Wikipedia). The first report of a fatality caused by COVID-19 was reported from India on

March 12, 2020. Almost 4.5 million individuals have been affected throughout the world (WHO).

According to a UNESCO study, it had affected more than 90% of the entire world's student population by the middle of April 2020. Still, by the end of June 2020, that proportion had reduced to roughly 67 percent. More than 120 million schoolchildren and young people worldwide have been affected by the COVID-19 pandemic. According to official data, the many restrictions and statewide lockdown for COVID-19 have impacted more than 32 crore students in India. According to the UNESCO research, around 14 crore primary kids and 13 crore secondary students are affected, making them India's two most affected grade levels.

Following a review of the corona virus pandemic scenario, the World Health Organization (WHO) suggested that maintaining social distance be the first line of defence. As a result, each country implemented a lockdown mechanism to separate the tainted people. Schools, colleges, and institutions in the education sector were obliged to close their doors. According to the announcement, classes were suspended, and all school, college, and university evaluations and admission tests were postponed indefinitely. As a result, the lockdown disturbed all pupils' schedules entirely. Even though this is an unusual circumstance in the history of education, COVID-19 has provided several opportunities for instructors to move from the challenging classroom teaching style to a new era of digital learning.

As a result of the lockdown, several educational institutions have been forced to cancel classes, assessments, internships, and other events, opting instead for online delivery. Educators and students were perplexed about dealing with the conditions generated by the unexpected crisis that prompted the suspension of educational activities for some time. However, in the end, everyone understood that the lockdown had taught them a lot about how to deal with pandemics in the future.

As a result, COVID posed various challenges and possibilities for educational institutions to increase their technical knowledge and infrastructure. As a consequence of the lockdown, their teachers and students will be allowed to continue their academic activities online, which they appreciate. Teachers used numerous tools such as Zoom, Google Meet, Facebook, YouTube, and Skype to distribute homework to students and offer lectures through video conferencing. WhatsApp groups have been developed to improve affective interaction among guardians, instructors, students, and parents. These groups communicate daily and use the internet to share their problems. The move to digital learning may be easier in a country like China, where the educational system is substantially more centralized.

Even in a developed country like the United States of America, some sure low-wage students cannot access broad bands and use digital learning settings (Study Abroad Life). In India, similar conditions occur, where not every student has access to high-speed internet or digital gadgets, putting many kids at a disadvantage. Many advanced educational institutions in India today lack digital infrastructure, making it impossible for them to adjust to the upcoming rapid transition from a traditional to a digital education system.

- **Covid 19's Educational Impact**

The coronavirus, which originated in China and spread at an alarming rate throughout the world, killed thousands of people and harmed millions more. Every sophisticated country has bowed down before it in a condition of astonishment. Every civilized country's attempt to enhance its healthcare system has failed terribly. The world has been unable to discover a solution despite several tries. One of the founding fathers of the United States of America, Benjamin Franklin, wisely observed that an investment in education produces the highest return.

Franklin's investing study should serve as a warning to legislators and other decision-makers. Covid-19 influences both students and instructors in different ways. The elimination of face-to-face training for its students has harmed higher educational institutions (HEOs). Students who are about to begin their higher education programmes find it more challenging to select the universities of their dreams. Teachers have been harmed by the lack of consistency in their traditional teaching activities, and they have been forced to adopt virtual teaching approaches.

Covid-19's total effect on the everyday lives of every layperson's company is improving, especially in emerging nations, and fledgling institutions are having problems maintaining their financial stability. Many private educational institutions have decided to impose cheaper tuition fees in India. The COVID-19 can have a considerable detrimental influence on the careers of this academic year's graduates.

Furthermore, during the last phases of their college educations, senior students are experiencing the most substantial disruptions in learning and evaluation, and young graduates will face significant challenges in the job market as a result of the worldwide crisis. According to a news release, the University Grants Commission (UGC) of India has recommended that all higher education institutes and universities extend the final semester and intermediate semester examinations until the end of March 2020.

All university exams and other recruiting exams in other country areas have also been postponed until March 2020. Delhi University offered a variety of examinations from September to November 2020. As a result, nearly all new graduates throughout the country are looking forward to starting a better career. Online classes are becoming increasingly popular in India, with over 1000 institutions and 40,000 colleges already offering them. According to the union health ministry, since Covid-19 was found in India on October 5, 2020, 1,03,569 individuals have died due to the virus, and 66,85,082 more have been affected (UHM).

4.2. Initiatives of Govt. of India on education during Covid-19

The Indian government has taken several preventative measures to halt the spread of the pandemic COVID-19 virus. The Union government authorized a state-wide lockdown of all educational institutions on March 16, 2020, with immediate effect. The Central Board of Secondary Education has determined that all secondary and upper secondary school examinations in India will be postponed to March 18, 2020. (CBSE). The CBSE has issued updated requirements for test sites, requiring a minimum of one metre between those taking the exam and the remainder of the class, which cannot have more than 24 students.

If the exam centres' rooms are small, the pupils should be separated into different rooms based on the available space. The Union Public Service Commission (UPSC) has postponed the interview for the Civil Services Examination 2019. (Wikipedia). COVID-19 has also pushed most state governments and other educational institutions to delay assessments. On March 22nd, a one-day Janta-curfew will be observed across the country, with lockdown to commence on March 25, 2020, and be imposed in stages.

Despite the Indian government's efforts to battle the by extending lockdown times and implementing a range of safeguards, educational institutions have remained closed indefinitely. In a statement released on June 29, lockdown 6.0 was proclaimed, which would last from July 1st to December 31st 2020, with certain limitations lifted in other areas except for education. During the lockdown, most state government departments have taken precautions to ensure that academic activity at schools and institutions is not hampered. As a result, they directed the schools to hold all their classes exclusively online.

As a result of the shutdown, the use of digital technology has accelerated. It has offered a chance to develop new and upgraded professional skills/knowledge through online learning more effectively and productively. Online learning is the most effective technique in this pandemic Covid-19 situation (Pravat, 2020b). The government's digital India plan is proving

to be a crucial tool in addressing the present problem resulting from the Covid-19 accident. Technology-based education is, without a doubt, more transparent in every way than conventional education.

The Indian government, state governments, and commercial firms took appropriate steps in response to the difficulties of universities and schools closing. The Ministry of Human Resource Development (MHRD) has put in place a variety of initiatives to help students continue their education, including online portals and instructional channels offered via Direct to Home TV and radio.

Students used popular social media technologies such as WhatsApp, Google Meet, Telegram, YouTube Live, and Facebook live to access the online teaching and learning system during the lockdown. It's a one-of-a-kind platform that collects all digital materials for online education under the MHRD's ICT project (e-Boucher, <https://mhrd.gov.in/ict-initiatives>).

India response

It offers curriculum-aligned and tailored e-Learning content for students, educators, and parents. This content contains video courses, worksheets, textbooks, and assessments for students, instructors, and parents. Under the supervision of the country's national boards of education (CBSE) and the National Council of Educational Research and Training, the curriculum was prepared by more than 250 instructors who teach in a range of languages (NCERT). The app can be used even if you don't have access to the internet. It has over 80,000 e-Books for grades 1 to 12 developed by the CBSE and NCERT, which are available in various languages. Textbooks' contents can also be accessed by scanning QR codes written on them. The Apple App Store and Google Play Store both have the app accessible for positive download.

4.3 Impact of Covid-19 on education:

Even though the outbreak of COVID-19 has had several negative repercussions for education, Indian educational institutions have accepted the challenges and are doing everything they can to give students smooth support services during the pandemic. The Indian education system now can transition from a traditional approach to one that is more contemporary. The following are some instances of beneficial outcomes that might be investigated.

4.3.1 Make the transition to blended learning:

The adoption of digital technology for educational delivery has accelerated due to COVID-19. The move to a mixed learning environment has begun in educational institutions, and its goal was to motivate all instructors and students to become more digitally savvy and capable. New forms of delivery and evaluations of learning have generated great opportunities for considerable change in curriculum production and pedagogy. It also allows large groups of pupils to be accessed simultaneously.

- Learning Management Systems are becoming more popular:
Learning management systems are becoming increasingly popular among educational institutions. It presented a massive opportunity for firms to create and improve learning management systems in academic institutions to profit from the situation.
- increase the use of soft copy learning materials by increasing:
During a lockdown, students could not get hard copies of study materials; hence, most students depended on soft versions of study materials for reference.
- Collaboration can be improved through several means.
There's a new opportunity for collaborative teaching and learning to take on new forms, which is now being investigated. Collaborations among faculty/teachers from around the world can also benefit from each other's knowledge.
- An increase in the number of online meetings-
As a result of the pandemic, teleconferencing, virtual meetings, webinars, and e-conferencing options have been massive growth.
- Greater Digital Literacy: The forced individuals to learn about and use digital technologies, resulting in a rise in digital literacy among the general population.
- Information communication via electronic media has improved: students can readily share learning materials, and queries about them may be answered via email, SMS, phone chats, and other social media platforms like WhatsApp or Facebook, among other means.
- Widespread exposure throughout the world: Educators and students alike will have the ability to communicate with peers from all around the world. Learners become used to being part of a worldwide community.
- More effective time management: During pandemics, students who participate in online education can better manage their time.

- Open and distant learning are in increasing demand (ODL).
- Most students preferred the ODL mode throughout the because it fosters self-learning by allowing students to study from various resources and tailoring learning to match their unique requirements.

4.4 Negative impact of COVID-19 on education:

Because of the outbreak of COVID-19, the education sector has suffered greatly. The result has been a wide range of negative consequences for education, some of which are listed below:

- The following factors impede the educational activity:
Exams at all levels have been postponed till further notice, and classes have been suspended. Various boards have already declared that their annual exams and entrance exams would be delayed, and the admissions process was postponed. As a result of the continued lockdown, students have missed approximately three months of the academic year 2020-21. This will exacerbate the issue of educational continuity, and pupils will have great difficulty returning to school after such a long absence.
- Employment repercussions:
The majority of the recruiting has been postponed due to COVID-19. Students' placements may potentially be compromised due to companies delaying new employee on boarding. The unemployment rate is expected to climb as a result of the outbreak. There is no government recruiting in India, and young graduates are worried that their job offers from private firms will be rescinded due to the present economic scenario. According to the Centre for Monitoring Indian Economy, the unemployment rate has risen from 8.4% in mid-March to 23% in early April, with urban unemployment rising from 30.9 percent to 30.9 percent in early April (Educationasia.in). When unemployment grows, schooling suffers as people prioritize providing for their families above furthering their education.
- Teachers and students who are ill-prepared for online education-
Not all instructors and students are comfortable with it, and not all of them were prepared for the rapid transition from face-to-face to online training. In the lack of a specialized online learning platform, most lecturers are merely providing lectures via video platforms such as Zoom, Google Meet, and other similar services, which may not represent real online learning.

- Global work opportunities are being reduced-
Some people may lose their jobs in other countries due to COVID-19's limitations, while some students who have graduated may be unable to find work in other countries. As a result of COVID-19, many Indians may have returned home after losing their jobs in other countries.
- As a result, fresh graduates who are about to join the labour market may find it challenging to find suitable work. Due to the lockout, many students who have already been hired through campus interviews may be unable to begin working at their new employment.
- Parents are taking on more responsibility for their children's education. Some educated parents can lead their children, while others may lack the essential knowledge to teach them at home.
- Having access to the digital world: According to the Centre for Digital Education, because many students have limited or no internet access, and because many students may not be able to afford a computer, laptop, or supporting mobile phone, online teaching-learning may result in a digital divide among students. According to many accounts, the blockade has had a particularly devastating impact on India's impoverished pupils, who cannot take advantage of online learning possibilities.
- As a result, the online teaching-learning strategy adopted during the COVID-19 outbreak may exacerbate the divide between affluent and poor and between urban and rural regions.
- Global education affordability: As a result of the pandemic, the higher education market has been severely disrupted. Many Indian students registered in various colleges abroad, particularly in the worst-affected countries, are presently departing. If the situation persists, the demand for foreign higher education would be significantly reduced in the long run.
- The payment of fees for schools and colleges has been delayed:
The majority of parents will be out of work during the lockdown. As a result, they may not pay tuition fees for the stipulated periods, potentially affecting private educational institutions. Incorporated into today's mainstream higher education system of learning
- The government and educational institutions should devise a strategy for educating pupils while preserving a social distance. If students and instructors follow the

COVID-19 guidelines, 30-40% of students and teachers will attend school/college in two shifts each day to complete educational tasks.

- Access to technology and the internet is a must in today's environment. Even the most remote and disadvantaged places must have access to digital capabilities and infrastructure for students to continue their education during pandemics.
- Public funds must be used to narrow the internet divide and ensure that students may continue to learn digitally in their classrooms. State governments and private groups should work together to find answers to the national challenge of digital education.
- The government and stakeholders should address several significant issues related to distance learning strategies, including the availability and accessibility of digital devices with internet connectivity, the need for safe learning environments, the development of capabilities for teachers and students to operate and navigate digital devices, and the development of engaging lesson plans for disabled students and another marginalized group.

4.5 Impact of COVID-19 Pandemic Lockdown on Libraries

As a result of the lockdown environment, libraries face challenges and limitations. State and federal governments and municipal governments use a range of strategies from time to time, with some authorities demanding the closure of all academic institutions, including libraries and information centres. In contrast, others use a combination of approaches. In this case, existing library professionals can take the following precautions to restrict the spread of COVID-19 through their institutions:

- Libraries are closed for the day.
- Students, faculty, and research scholars are exempt from these restrictions.
- Organizing and storing library items.
- Provider of library services at a distance.
- Learning on the move.
- Online class, online webinars, workshops, quizzes, and online meetings are all possibilities.
- Exchanging e-resources from the library.
- Expanding the usage of digital library resources

COVID-19 has had a substantial influence on India's education sector. Despite the myriad hurdles it has created, it has also brought tremendous possibilities. To deal with the present

COVID-19 challenge, several stakeholders in education, including the Indian government and several educational institutions, have studied the notion of Open and Distance Learning (ODL) through different digital technologies.

India is not yet completely equipped to ensure that digital platforms enable education to reach every part of the country. As a result of the current selection of digital media, students who do not have the same chances as their classmates would suffer. Despite this, universities and the Indian government are working round the clock to solve the problem.

The use of digital technologies should be prioritized to improve the status of millions of young students in India. Educational institutions must strengthen their knowledge and information technology infrastructure to deal with eventualities like COVID-19.

Regardless of how much time passes and the COVID-19 scenario persists, every effort must be made to optimize the utilization of online platforms so that students may complete their degrees this academic year and prepare for the future digitally oriented environment. In a pandemic, the notion of "working from home" is more significant since it can limit the spread of COVID-19.

During a pandemic, India should create creative solutions to ensure that all children access long-term learning during Covid-19. To guarantee that education is delivered efficiently in India, policies must include people from all walks of life, especially rural areas, underprivileged populations, and minorities. It is encouraged that students continue their online practice after the lockdown since they gain much from it.

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CHAPTER – 5
DATA ANALYSIS & INTERPRETATION

CHAPTER 5

DATA ANALYSIS & INTERPRETATION

5.1. Introduction

The collection of data through a questionnaire is organized in this chapter and interpreted according to the question asked to the respondent, which is as follows.

5.2 Data Analysis & Interpretation

Table 5.2.1: Total no. of Respondents

Particular	Respondents	Distributed questionnaire	Received questionnaire	Response (In%)
Librarian	01	01	01	100%
Professional Staff	20	20	17	85%
Total	21	21	18	85.71%

Table 5.2.1 shows that 21 Questionnaire are distributed among the respondent and 85.71 % response rate are received back.

Table 5.2.2: Staff Details

S.N.	Designation	No. of staff	Permanent	Temporary
1	Librarian	01	✓	0
2	Deputy Librarian	01	✓	0
3	Assistant Librarian (Sr. scale)	02	✓	0
4	Assistant Librarian	02	✓	0
5	Scientific Officer	01	✓	0

6	Library Information Officer	03	✓	0
7	Assistant Library Information Officer	06	✓	0
8	Jr. Library Information Assistant	04	✓	0
9	Library Attendant	01	✓	0
Total no. of Staff		21	21	0

Table 5.2.2 depicts that there are 21 permanent staff members at the Central Library, including the librarian & professional staff members. Central library has deputy librarian (01), Assistant librarian sr. scale (02), Assistant librarian (02), scientific officer (01), Library information officer (03), Assistant library information officer (06), Jr. library Information Assistant (04) and Library Attendant (01). All of the staff members are well versed in ICT and highly educated.

Table 5.2.3: New changes in the library at Covid-19 Period

(Rating scale, 1 = strongly agree, 2 = agree, 3 = neither agree nor disagree, 4 = disagree, 5 = strongly disagree)

S.N.	New changes at Covid-19 Period	Yes	No	1	2	3	4	5
1	Proper sanitization	✓		✓				
2	Staff are advised to come library on alternative days	✓		✓				
3	Entry of UG-PG students close	✓		✓				
4	Limited access for research scholar		✓					✓
5	Offline Issue-Return close	✓		✓				
6	Stay at home if you feel sickness	✓		✓				
7	Keep books at a separate place at least	✓		✓				

	for 48 hours when check-in / check out							
8	Use mask, gloves and cover while sneezing and coughing	✓		✓				
9	Avoid sneezing or coughing while handling books	✓		✓				
10	Directed to keeping surfaces clean, including library computers surfaces like doorknobs, switches and railing etc.	✓		✓				
11	Use online platforms or social media to share knowledge / Information	✓		✓				
12	Provide remote access of library resources to the users	✓		✓				
13	Promote paperless work culture in the library	✓		✓				
14	Frequently used items such as magazines and newspapers may only be accessible to people with gloves, masks, etc.	✓		✓				

Table 5.2.3 shows that all measures and options have been made to prevent Covid-19 spreading. According to this table, library personnel are required to wear a face mask at all times, and only users who are wearing a face mask are allowed to enter the library. The library is cleaned regularly. As seen in this table, Staff members suggest visiting the library on alternating days. Entry of UG and PG students has come to a halt due to Covid-19, and an offline issue-return service was blocked throughout the Covid-19 period. To protect the library's personnel and patrons, they store books and other study materials in a particular place for at least two days while checking in/out. There are several changes have happened due to the Covid-19 library's support of paperless work culture and its users' provision of online resources.

Table 5.2.4: Percentage of Library staff who came to the library

S.N.	Percentage	Response
1	More than 25 percent	No
2	50 percent	✓
3	More than 50 Percent	No
4	100 Percent	No

Table 5.2.4 reveals that the central library remained open during the Covid-19 pandemic, only 50% of the library's personnel are giving services to its users daily. Because due to the continuous increase in Covid-19 cases in our country, the Government of India had issued the guidelines to work for only 50% of the employees in institutions and offices. During the Lockdown, librarians and professional staff played critical responsibilities in library.

Table 5.2.5: Covid-19 cases found in a library

S.N.	Covid-19 cases	Response
1	Yes	✓
2	No	-
3	No. of cases	03

Table 5.2.5 depicts that there are three library staffs are tested covid positive. Still, the central library is open, and all professional library staffs are doing their duties. This table indicates that the staff of the central library of IIT, Roorkee, are so well trained and professional; they face lots of difficulties during a pandemic but still do their job and try to satisfy library users.

Table 5.2.6 Precautions (If Covid-19 case found in the library)

S. N	Precautions	Response
1	Library closed for a few days	✓
2	The library opened, but services closed	No
3	All of the services closed	✓
4	all of the staff members were sent to isolation	✓
5	Entire library sanitized	✓
6	After covid-19 cases, user entry limited	✓
7	Directed to maintain social distance	✓
8	Motivated to follow good health and hygiene habits	✓

Table 5.2.6 indicates that Precautions are taken when the Covid-19 case is found in the library. When the covid-19 case was found in the library, the central library closed for a few days and sent all the staff members in isolation and sanitized the entire library. In this duration, the services of the library were closed and strictly followed all rules and regulations which are government issued for safety from corona virus.

5.2.7: Library management affect due to Covid-19

S.N.	Library management affect due to Covid-19	Yes	No
1	Collection development	✓	
2	Budget		✓
3	Staff structure	✓	
4	Handling of library resources	✓	
5	Managing remote access		✓
6	Issue return	✓	

7	Staff and user interaction	✓	
8	Promotion activity	✓	
9	User orientation	✓	
10	User registration	✓	

Table 5.2.7 shows that the Covid-19 had a huge adverse impact on the library management in which includes collection development, staff structure, handling of library resources, Issue return, staff and user interaction, promotion activity, user orientation and user registration. In contrast, IIT's central library did not face any problem with the budget and managing the remote access.

Table 5.2.8: Challenging task for library management

(Level: 1 = very difficult, 2 = Difficult, 3 = Neutral, 4 = Easy, 5 = Very easy)

S.N.	Factors	1	2	3	4	5
1	Managing the books physically		✓			
2	Managing the online services					✓
3	Managing the library staff					✓
4	Managing the visitors	✓				
5	Maintain the social distance					✓
6	Managing the cleanliness and security system in the library					✓

Table 5.2.8 illustrates that the complete process of library management is relatively very easy to perform at the time of covid-19. The library was having trouble managing physical books and dealing with visitors.

Table 5.2.9: Librarian satisfaction with library staff's works & services

S. N.	Satisfaction Level	Response
1	Highly satisfied	✓
2	Satisfied	×
3	Partially	×
4	Dissatisfied	×
5	Highly dissatisfied	×

Table 5.2.9 depicts that librarian are highly satisfied with library staff's works & services during pandemic.

Table 5.2.10: Programs organized to train library staff

S.N.	Programs organized	Response
1	Yes	×
2	No	✓

The table 5.2.10 reveals that the central library has not organized any type of training session or program for the library staff on how to do his job during covid-19.

Table 5.2.11: Services offered by the library

S.N.	Services	Yes	No	Online	Offline	Online & Offline both
1	Inter-Library Loan	✓		✓	✓	✓
2	A special membership for outsiders		✓			
3	Bibliographical	✓		✓		
4	Reprography		✓	✓		
5	Reference services	✓		✓	✓	✓
6	Indexing & abstracting		✓			
7	CAS	✓		✓		
8	SDI	✓		✓		
9	Translation	✓		✓		
10	User Education	✓		✓		
11	Alerting services	✓		✓		
12	DDS services	✓		✓		
13	Online Newspaper clipping	✓		✓		
14	Web OPAC	✓		✓		
15	Digital services	✓		✓		
16	Circulation services	✓			✓	
17	Referral Service		✓			
18	Tutorial program		✓			
19	Virtual Reference Service		✓			
20	Bulletin board service		✓			
21	E-mail / List service	✓		✓		
22	Remote access to e-resources	✓		✓		

Table 5.2.11 Shows library offers almost all services; nevertheless, several services, such as special membership for outsiders, Reprography, Indexing and abstracting, Referral service, Tutorial program, virtual reference, bulletin board services are not available to its users. During the Covid-19 period, the data also shows that the library offers a variety of services, both online and offline.

Table 5.2.12: E-resources provided by library

S.N.	E-Resources	Response
1	E-Book	✓
2	E-Journal	✓
3	E-Newspaper	×
4	E-Magazines	✓
5	E-Thesis	✓
6	E-Clipping	×
7	Indexing and Abstracting Databases	×
8	Full-text database	✓
9	Reference database	✓
10	Statistical database	✓
11	Image collection	×

Table 5.2.12 reveals that the library provided extra services to its users during the Covid-19 outbreak to help them get the most out of their e-resources while remaining safe and undisturbed in their studies. The library does not offer electronic newspapers, clippings, indexing and abstracting databases, or image collections.

Table 5.2.13: Open Access Resources provided by library

S.N.	Open Access Resources	Yes or No
1	Directory of Open Access Book (DOAB)	✓
2	Directory of Open Access Journal (DOAJ)	✓
3	Open DOAR	✓
4	Open Access Theses & Dissertations	✓
5	Registry of Open Access Repository (ROAR)	✓
6	Vidwan	✓
7	Internet Archive	✓
8	Social Sciences Research Network (SSRN)	✓
9	Digital Library of India	✓
10	National Digital Library of India (NDLI)	✓
11	Shodhganga	✓
12	SWAYAM	✓
13	SWAYAMPBHA	✓
14	e-Acharya	✓
15	e-Gyankosh	✓
16	e-PG Pathshala	✓
17	e-Shodhsindhu	✓
18	PLoS	×
19	PubMed Central	×
20	Science Alert	×
21	Rare Book Room	✓
22	Springer Open Access	✓
23	ArXiv.org	×

Table 5.2.13 shows that the central library offers many databases or open access resources to its users. During the time of covid-19, the process of teaching and learning don't be interrupted, so the library provided 18 different types of open access materials to its users i.e. Directory of Open Access Book (DOAB), Directory of Open Access Journal (DOAJ), Directory of Open Access repository, Open access theses & dissertations, Registry of Open Access Repository, Vidwan, Internet Archive, Social science Research Network (SSRN), Digital library of India, National Digital library of India (NDLI), Shodhganga, SWAYAM, SWAYAMPBABA, e-Acharya, e-Gyankosh, e-PG Pathshala, e-Shodhsindhu, Rare Book Room, Springer Open Access etc.

Table 5.2.14: Limitations in providing access to E-resources

(Rating, 1 = strongly agree, 2 = agree, 3 = neither agree nor disagree, 4 = disagree, 5 = strongly disagree)

S.N.	Particulars	1	2	3	4	5
1	Lack of Necessary Infrastructure in the Library					✓
2	Lack of Knowledge of E-resource availability					✓
3	Lack of Skilled human resources in libraries					✓
4	Lack of managerial skills in library staff					✓
5	Problems related to software		✓			
6	Inadequate budgetary allocations for E-resource collection and management					✓
7	Lack of interest of the library users for E-resources					✓
8	Indifferent attitude of the Institute Management towards E-resources					✓
9	Lack of Institution Policy for E-resource					✓
10	Integration of E-resources with the traditional resources					✓

11	Lack of professional skills					✓
12	Lack of knowledge of changing technology					✓
13	Lack of ICT training and skills to library staff					✓
14	The training needs of library staff are often ignored in academic institutes.					✓

Table 5.2.14 shows that library staff faced only software-related issues only. There are no challenges or hurdles in offering electronic resources to library patrons i.e. Lack of necessary infrastructure in the library, lack of knowledge of e-resource availability, lack of skilled human resources in libraries, indifferent attitude of the Institute management towards e-resources, lack of ICT training and skills to library staff, etc, during Covid-19 period.

Table 5.2.15: Stress Level of library staff due to workload

S.N.	Stress Level	Response	Percentage
1	Extremely Stress	08	47.05%
2	Much Stress	01	5.88%
3	Moderate Stress	05	29.41%
4	Mild Stress	0	0
5	Not Stress	03	17.64%

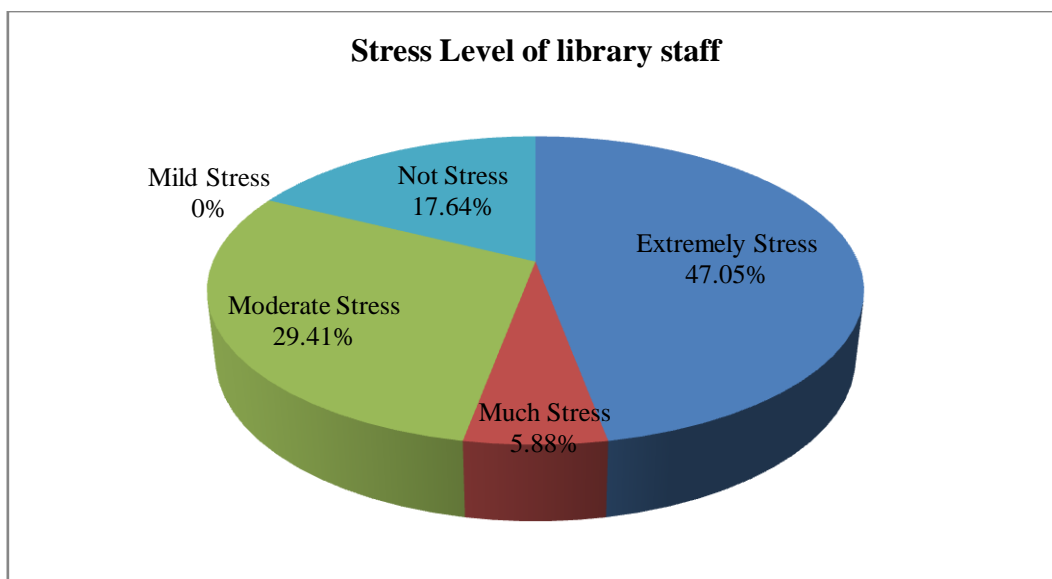


Figure 5.1

Table 5.2.15 and figure 5.1 indicates the stress Level of central library staff due to Covid-19. 47.05% of respondents are extremely stressed, 29.41% respondents are moderate stressed, 5.88% respondents are much stressed and 17.64% respondents are not stressed.

Table 5.2.16: Opinion towards strictly following prevention rules from Covid-19

S.N.	Opinion	Response	Percentage
1	Strongly agree	18	100%
2	Agree	0	0
3	Neither agree nor disagree	0	0
4	Disagree	0	0
5	Strongly disagree	0	0

Table 5.2.16 shows that the all library employees carefully follow the Covid-19 protocol's corona prevention guidelines before entering the library.

Table 5.2.17: Behaviour of superior authority towards the library staff

S.N.	Opinion	Response	Percentage
1	Much better	12	70.58 %
2	Somewhat better	01	5.88 %
3	Stayed the same	04	23.52 %
4	Somewhat worse	0	0
5	Not at all	0	0

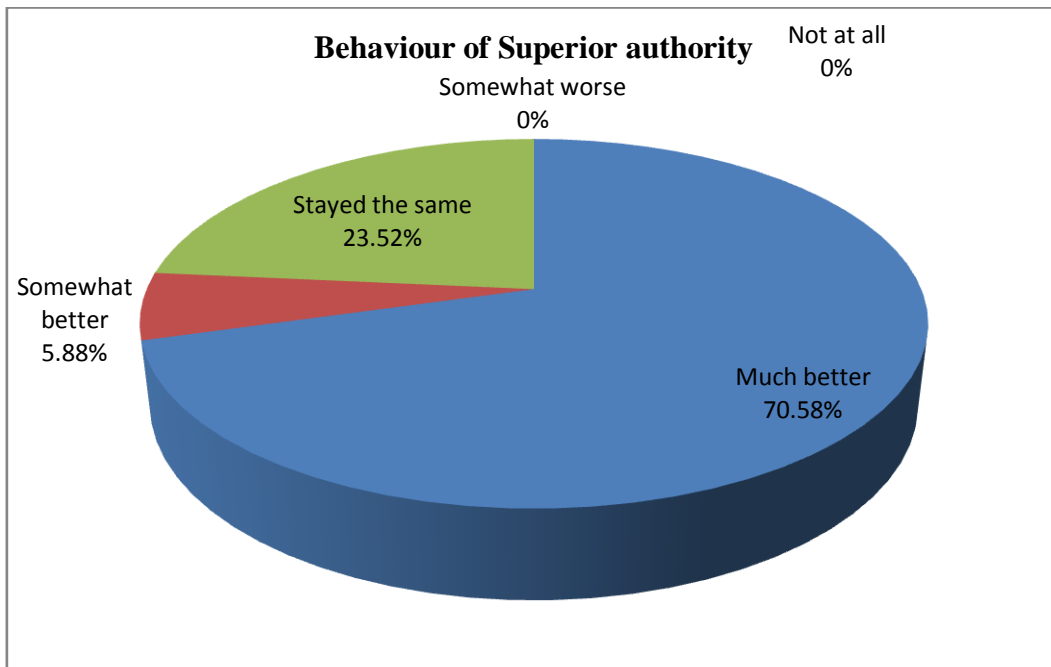


Figure 5.2

The table 5.2.17 & figure 5.2 illustrates that the library staff has been treated very well by the senior officers of the library during Covid-19. 70.58% respondents said that they were treated much better by the senior authorities. In contrast, 23.52% of the respondents said that the behaviour of the senior officers towards stayed the same.

Table 5.2.18: Awareness about ICT tools

S.N.	Level of Awareness	Response	Percentage
1	Extremely Aware	09	52.94 %
2	Very Aware	05	29.41 %
3	Moderately aware	03	17.64 %
4	Slightly Aware	0	0
5	Not at all aware	0	0

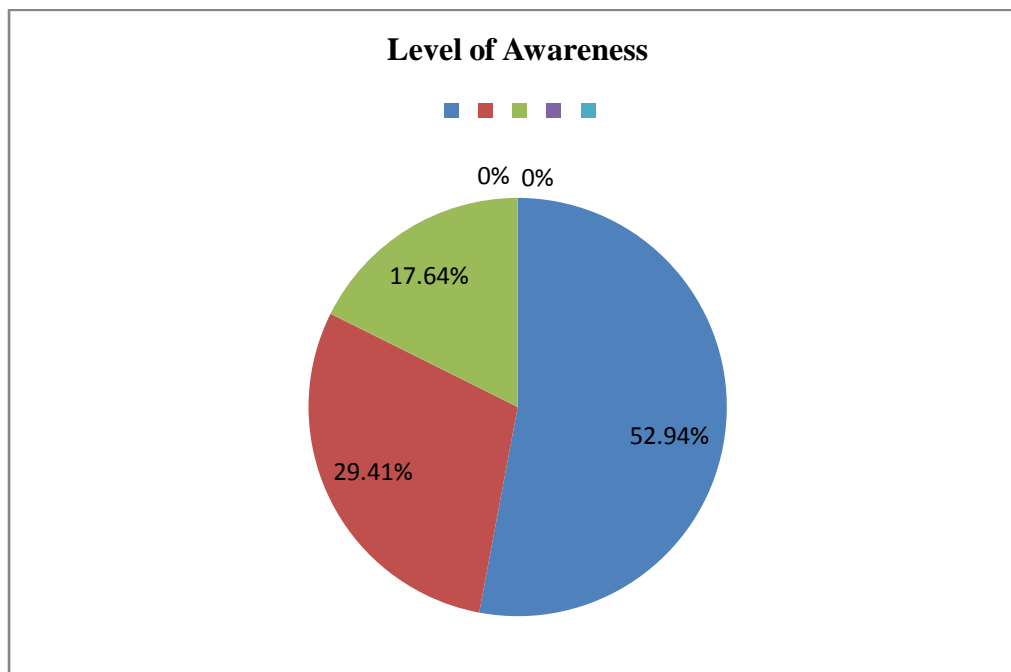


Figure 5.3

Table 5.2.18 and figure 5.3 indicate that 52.94 % among library staff are extremely aware, 29.41 % are very aware, and 17.64 % are moderately aware about the ICT.

Table 5.2.19: Satisfaction level of library staff with library management

S. N.	Satisfaction Level	Response	Percentage
1	Highly satisfied	18	100 %
2	Satisfied	0	0
3	Partially	0	0
4	Dissatisfied	0	0
5	Highly dissatisfied	0	0

Table 5.2.19 shows that the library staff members are highly satisfied with the library management's during the covid-19 pandemic. During the covid-19 period, no one indicated that they were partially or wholly dissatisfied with library management decisions.

Table 5.2.20: Attitude towards providing services to users

S. N.	Satisfaction Level	Response	Percentage
1	Highly satisfied	12	70.58%
2	Satisfied	05	29.41%
3	Partially	0	0
4	Dissatisfied	0	0
5	Highly dissatisfied	0	0

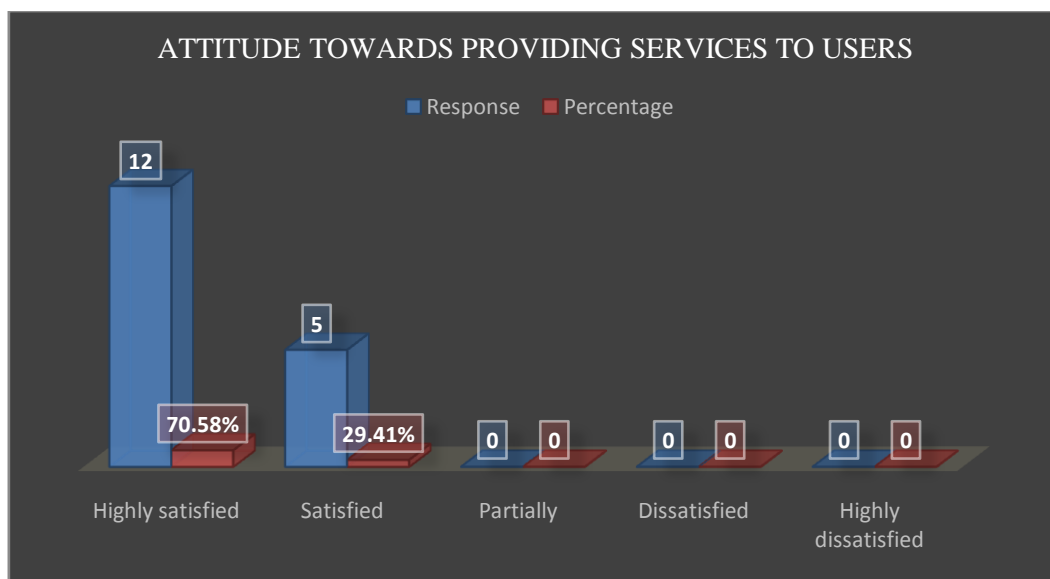


Figure 5.4

Table 5.2.20 & figure 5.4 indicate that the attitude of all library staffs are highly satisfied towards providing services to users. The attitudes of 70.58 % respondents are highly satisfied and 29.41 % respondents are satisfied.

Table 5.2.21: Effectiveness of online medium to providing library services

S.N.	Level of Effectiveness	Response	Percentage
1	Extremely Effective	18	100 %
2	Very Effective	0	0
3	Moderately Effective	0	0
4	Slightly Effective	0	0
5	Not at all Effective	0	0

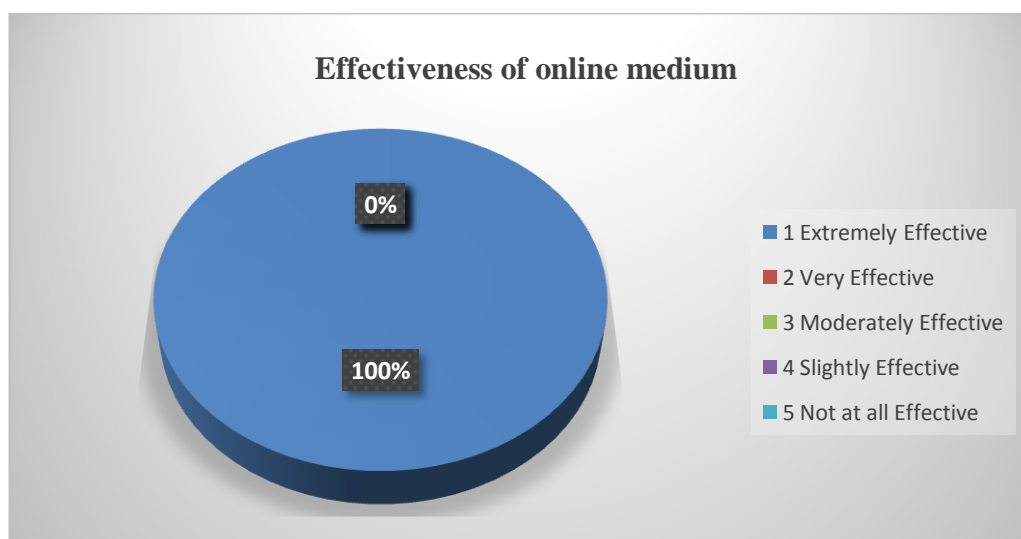


Figure 5.5

Table 5.2.21 & figure 5.5 show that, the online medium has played an important role in the situation of Covid-19 pandemic. The Internet has played an effective role in providing library services to the users who are stayed at home. 100 % of professional staff members of the central library agreed that online medium has been extremely effective during Covid-19 period.

Table 5.2.22: Challenges faced by the library staff

(Rating Scale, 1 = Strongly Agree, 2 = Agree, 3 = neither agree nor disagree, 4 = disagree, 5 = strongly disagree)

S.N.	Challenges	1	2	3	4	5
1	Workload increases	02 (11.76%)	07 (41.17 %)	03 (17.64 %)	02 (11.76 %)	03 (17.64 %)
2	Financial problems	0 (0 %)	01 (5.88 %)	0 (0 %)	07 (41.17 %)	09 (52.94 %)
3	Health problems	03 (17.64 %)	11 (64.70 %)	0 (0 %)	0 (0 %)	03 (17.64 %)
4	Mentally stress	05	06	02	0	04

		(29.41 %)	(35.29 %)	(11.76 %)	(0 %)	(23.52 %)
5	Strict rules to enter the library	04 (23.52 %)	03 (17.64 %)	02 (11.76 %)	04 (23.52 %)	04 (23.52 %)
6	Lack of awareness about ICT tools	0 (0 %)	03 (17.64 %)	01 (5.88 %)	06 (35.29 %)	07 (41.17 %)
7	Provide online facility to users	03 (17.64 %)	05 (29.41 %)	01 (5.88 %)	01 (5.88 %)	07 (41.17 %)

Table 5.2.22 reveals that the challenges faced by the library staff during the covid-19 pandemic. Above table shows that workload also increases and library staff faced health issues, mental stress and strict rules to enter the library. According to the respondents, providing online facilities to its users and fulfilling their needs is also a challenge during the covid-19 pandemic. The table also indicates that the library staffs are aware of ICT, and they did not have any problems using ICT tools.

Table 5.2.23: Difficulties faced to provide library services

(Rating scale, 1 = Strongly Agree, 2 = Agree, 3 = neither agree nor disagree, 4 = disagree, 5 = strongly disagree)

S.N.	Difficulties	1	2	3	4	5
1	Lack of time	01 (5.88 %)	04 (23.52 %)	03 (17.64 %)	05 (29.41 %)	04 (23.52 %)
2	Lack of e-resources	02 (11.76 %)	10 (58.82 %)	0 (0 %)	02 (11.76 %)	03 (17.64 %)
3	Lack of Knowledge of Using e-resources	0 (0 %)	03 (17.64 %)	01 (5.88 %)	07 (41.17 %)	06 (35.29 %)
4	Lack of awareness about	0	03	0	08	06

	ICT tools & techniques	(0 %)	(17.64 %)	(0 %)	(47.05 %)	(35.29 %)
5	Lack of cooperation from users	0 (0 %)	06 (35.29 %)	02 (11.76 %)	03 (17.64 %)	06 (35.29 %)
6	Low Speed of Internet	01 (5.88 %)	06 (35.29 %)	02 (11.76 %)	03 (17.64 %)	05 (29.41 %)
7	Lack of infrastructure	01 (5.88 %)	01 (5.88 %)	02 (11.76 %)	08 (47.05 %)	05 (29.41 %)
8	lack of cooperation from library authority	0 (0 %)	0 (0 %)	0 (0 %)	11 (64.70 %)	06 (35.29 %)

Table 5.2.23 illustrate the difficulties faced to provide library services during the pandemic. Library staff members faced many difficulties while doing their job during the pandemic period, such as lack of cooperation from users, lack of e-resources. Most of the respondents also agree with the statement that online library services are also disrupted due to low speed of internet during Covid-19.

Table 5.2.24: Barriers feel for management in library

(Rating Scale, 1 = strongly agree, 2 = Agree, 3 = neither agree nor disagree, 4 = Disagree, 5 = strongly disagree)

S.N.	Barriers	1	2	3	4	5
1	Did not get salary on time	0 (0 %)	0 (0 %)	01 (5.88 %)	12 (70.58 %)	04 (23.52 %)
2	Uncomfortable	02 (11.76 %)	02 (11.76 %)	0 (0 %)	12 (70.58 %)	01 (5.88 %)
3	Lack of training programs about newly	01 (5.88 %)	06 (35.29 %)	0 (0 %)	09 (52.94 %)	01 (5.88 %)

	ICT application					
4	Lack of support from the authorities	0 (0 %)	0 (0 %)	01 (5.88 %)	14 (82.35 %)	02 (11.76 %)
5	Lack of Time management	0 (0 %)	08 (47.05 %)	05 (29.41 %)	04 (23.52 %)	0 (0 %)
6	The system of protection from covid-19 in the library was not good	0 (0 %)	02 (11.76 %)	0 (0 %)	13 (76.47 %)	02 (11.76 %)

Table 5.2.24 depicts the barriers experienced by library administration and services during the Covid-19 Pandemic. According to this table, the respondents main complaint throughout the Covid-19 period are lack of time management and Lack of training programs for newly ICT applications. The table also demonstrated that the library has sufficient cash and personnel to quickly deliver all services to its patrons and library employees feel confident in providing services throughout the Covid-19 period.

Table 5.2.25: Experience of working during Covid-19

S.N.	Opinion	Response	Percentage
1	It was a positive experience	12	70.58 %
2	It was a negative experience	0	0 %
3	Neither positive nor Negative	05	29.41 %

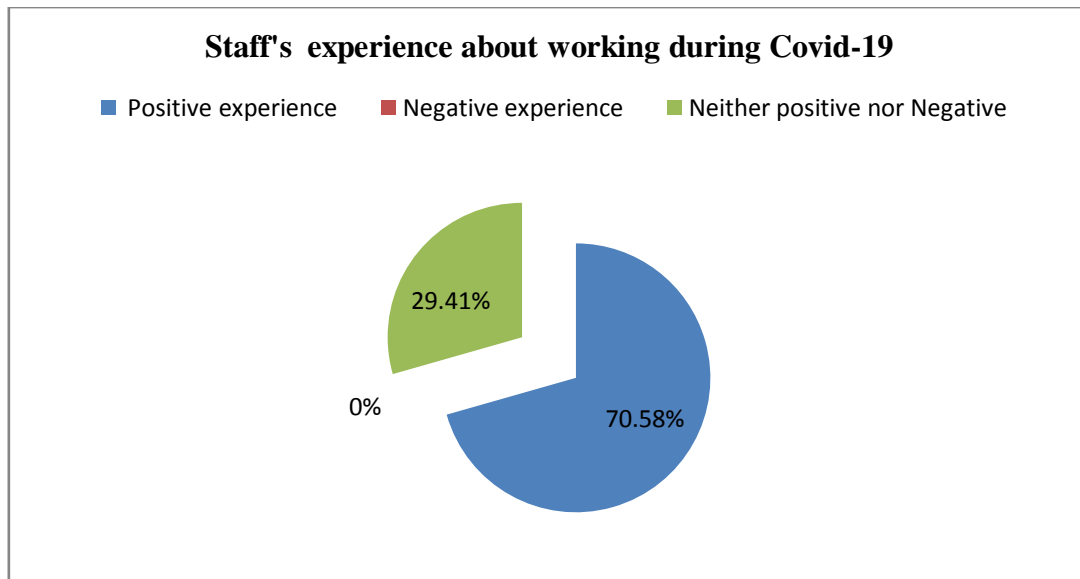


Figure 5.6

Table 5.2.25 & figure 5.6 shows that 70.58% library staff members responded positively to working in the library and working from home during Lockdown and Covid-19. In contrast, 29.41% of the respondents said that their work experience was neither positive nor negative during the Covid-19 pandemic.

Hypothesis testing

- H1= The Indian Institute of Technology, Roorkee library delivers all the services to its users during the Covid-19 pandemic, so this hypothesis is accepted.
- H2= During covid-19, Indian Institute of Technology, Roorkee personnel made adjustments in the library to serve the users better, so this hypothesis is accepted.

CHAPTER – 6
FINDINGS, CONCLUSION AND
SUGGESTIONS

CHAPTER - 6

FINDING, CONCLUSION & SUGGESTIONS

6.1 Introduction

This chapter focuses on summarising the findings, conclusions, and suggestions based on the data analysed in the previous chapter.

6.2 Findings of the study

The findings are based on the analysis of collected data from the central library staff of the Indian Institute of Technology, Roorkee. The significant result of the study is as follow:

- In the central library of the Indian Institute of Technology, Roorkee. There are 21 permanent library staff members, including a librarian.
- During the Covid-19 pandemic, the library is open.
- In the central library of IIT, Roorkee, all library professionals are well-versed in ICT.
- The library staff member provides all essential services through online & offline mode during Covid-19 pandemic.
- During Covid-19, the library offered various additional services to its users over the internet.
- The library provided remote access and full-text database access to users during the lockdown.
- While entering the library or while in the library, all library employees at the Indian Institute of Technology, Roorkee, adhere to all guidelines for preserving covid-19.
- During the Covid-19, all library personnel say that monitoring visitors and physically handling books is the most demanding duty.
- The library employee is pleased with the decision made by the library management during Covid-19. There were no challenges or hurdles in offering e-resources to library patrons during Covid-19.
- Working at the library and working from home during Covid-19 are favourable answers according to library staffs of IIT, Roorkee.

Conclusion

This study concluded that the staffs of central library have followed all necessary changes at Covid-19 period. They are proper sanitized the library, entry of UG, PG students and offline issue return has been closed, use face mask, gloves while coughing, sneezing etc for prevention to spread corona virus. Only 50% library staffs are allowed to serve library. In this pandemic period physically managing the books and visitors has been difficult but staff easily maintained social distancing and cooperation in cleanliness and security system in library. Online services are very helpful. Central library offered maximum services through online as well as e-resource such as e-books, e-journals, e-magazine, e-theses etc. Various open access resources are also provided by the library i.e. DOAB, DOAJ, Shodhganga, SWAYAM, SWAYAMPRAKASHA, etc to avoid any kind of difficulties in studying and research.

This study also highlighted that amidst of Covid, library staffs are extremely stressful due to workload but they are strongly agreed with the opinion to strictly follow prevention rules for Covid-19 and they believed that it was positive experience of work from home & working in a library during lockdown.

Suggestions

- According to the findings, libraries should be prepared for pandemic scenarios and remove any impediments that may arise during the Covid-19 pandemic.
- During the Covid-19 , the library should provide more online services to its users and promote online mode.
- All standards for Covid-19 safety should be strictly followed by the library and library employees.
- All essential study materials must be available for users in online/soft forms at the library

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APPENDIX
(QUESTIONNAIRE

QUESTIONNAIRE FOR LIBRARIAN

1. GENERAL INFORMATION

a	Name of the Institute	
b	Name of the Central Library of Institute	
c	Name of the Librarian	
d	Contact No	
e	E-mail address	

2. STAFF DETAILS:

Designation	No. of staff	Permanent	Temporary
Librarian			
Deputy Librarian			
Assistant Librarian (Sr. scale)			
Assistant Librarian			
Scientific Officer			
Library Information Officer			
Assistant Library Information Officer			
Sr. Library Information Assistant			
Jr. Library Information Assistant			
Library Attendant			
Library Trainee			
Others (Please specify):			

3. Lockdown affected in your Institute :

a	After the advisory of Central government	
b	After the advisory of State government	
c	Closed before the advisory of State or Central	
d	After the Covid-19 cases found in library	

4. Did the library management do new changes in library during Covid-19 and How much did you agree with these new changes?

(Please use the rating scale for answering these questions, 1 = Strongly agree, 2 = agree, 3 = neither agree nor disagree, 4 = disagree, 5 = Strongly disagree)

S.N.	New Changes at the time of Covid-19	Yes	No	1	2	3	4	5
1	Proper sanitization							
2	Staff are advice to come library in alternative days							
3	Entry of UG-PG student close							
4	Limited access for research scholar							
5	Offline Issue-Return close							
6	Stay at home if you feel sickness							
7	Keep books at separate place at least for 48 hours when check in / check out							
8	Use mask, gloves and cover while sneezing and coughing							
9	Avoid sneezing or coughing while handling books							
10	Directed to keeping surfaces clean, including library computers surfaces like door knobs, switches and railing etc.							

11	Use online platforms or social media to share knowledge / Information							
12	Provide remote access of library resources to the users							
13	Promote paperless work culture in the library							
14	Frequently used items such as magazines and newspapers may only be accessible to people with gloves and masks, etc.							

5. Have you compelled the library staff to come to the library everyday even during the lockdown?

Yes ()	No ()
---------	--------

6. What percentage of Staff members were called to library during covid-19 pandemic?

S. N.	Percentage	Tick (✓)
1	More than 25 percent	
2	50 percent	
3	More than 50 Percent	
4	100 Percent	

7. Does library find any covid cases in this period?

Yes ()		NO ()	
If yes please tick the number of cases find in library		Tick (✓)	No. of cases
1	Below 5		
2	5 to 10		
3	10 to 20		

4	20 to 30		
5	More than 30		

8. What kind of precautions were taken if covid positive case were found in the library staff?(**Permit for choose more than one**)

S. N.	Precautions	Tick (✓)
1	Library closed for few days	
2	library opened but services closed	
3	All of the services closed	
4	all of the staff members were sent to isolation	
5	Entire library sanitized	
6	After covid cases user entry limited	
7	Directed to maintain social distance	
8	Motivated to follow good health and hygiene habits	

9. Any job loss for the temporary staff of library?

Yes ()		No ()	
If yes please tick the percentage of staff are temporary/open source :			Tick (✓)
1	Up to 10%		
2	10% to 20%		
3	20% to 30%		
4	30% to 50%		
5	More than 50%		

10. Was the salary reduced during the Covid-19?

Yes ()	No ()
---------	--------

If yes please tick the percentage of salary reduce		Tick (✓)
1	Up to 10%	
2	10% to 20%	
3	20% to 30%	
4	30% to 50%	
5	More than 50%	

11. How the library management got affected during the Covid-19 pandemic?

S.N.	Library management affect due to Covid-19	Yes	No
1	Collection development		
2	Budget		
3	Staff structure		
4	Handling of library resources		
5	Managing remote access		
6	Issue return		
7	Staff and user interaction		
8	Promotion activity		
9	User orientation		
10	User registration		

12. The most difficult task for the library management during the covid period –

(Please rate the difficulty level: 1 = very difficult, 2 = Difficult, 3 = Neutral, 4 = Easy, 5 = Very easy)

S.N.	Factors	1	2	3	4	5
1	Managing the books physically					
2	Managing the online services					
3	Managing the library staff					
4	Managing the visitors					

5	Maintain the social distance					
6	Managing the cleanliness and security system in the library					

13. Are you satisfied with your library staff's works and services during Covid-19 pandemic?

S. N.	Satisfaction Level	Tick (✓)
1	Highly satisfied	
2	Satisfied	
3	Partially	
4	Dissatisfied	
5	Highly dissatisfied	

14. Whether any programs has been organized by the library administration to train & motivate the library staff members during Covid-19?

Yes ()		No ()	
If yes, please specify:			
S.N.	Programs	No. of programs	Theme
1	Training programs		
2	Orientation Programs		
3	Workshops		
4	Seminar		
5	Webinar		
	Others (Please specify):		

15. During this period of Covid-19, at what time interval did you organize training programs to train the staff members?

S. N.	Time interval	Tick (✓)
1	Weekly	
2	Monthly	
3	Quarterly	
4	Half yearly	
5	Yearly	

LIBRARY SERVICES

16. Please select the facilities / services offered and the mode of the services provided by your Library during Covid-19 Pandemic?

S.N.	Services	Yes	No	Online	Offline
1	Inter-Library Loan				
2	A Special membership for outsiders				
3	Bibliographical				
4	Reprography				
5	Reference services				
6	Indexing & abstracting				
7	CAS				
8	SDI				
9	Translation				
10	User Education				
11	Alerting services				
12	DDS services				
13	Online Newspaper clipping				
14	Web OPAC				

15	Digital services				
16	Circulation services				
17	Referral Service				
18	Tutorial program				
19	Virtual Reference Service				
20	Bulletin board service				
21	E-mail / List service				
22	Remote access to e-resources				
23	If any other (please specify)				

17. Do you have provided remote access to e - resources during Covid-19 Pandemic?

Yes ()	No ()
---------	--------

If Yes, please tick the below e - resources provided by the library:

S.N.	E-Resources	Tick (✓)
1	E-Book	
2	E-Journal	
3	E-Newspaper	
4	E-Magazines	
5	E-Thesis	
6	E-Clipping	
7	Indexing and Abstracting Databases	
8	Full text database	
9	Reference database	
10	Statistical database	
11	Image collection	

12	Others (Please specify):
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18. Open Access Resources provided by the library at the time of Covid-19 Pandemic :

S.N.	Open Access Resources	YES	NO
1	Directory of Open Access Book (DOAB)		
2	Directory of Open Access Journal (DOAJ)		
3	Open DOAR		
4	Open Access Theses & Dissertations		
5	Registry of Open Access Repository (ROAR)		
6	Vidwan		
7	Internet Archive		
8	Social Sciences Research Network (SSRN)		
9	Digital Library of India		
10	National Digital Library of India (NDLI)		
11	Shodhganga		
12	SWAYAM		
13	SWAYAMPURABHA		
14	e-Acharya		
15	e-Gyankosh		
16	e-PG Pathshala		
17	e-Shodhsindhu		
18	PLoS		
19	PubMed Central		
20	Science Alert		
21	Rare Book Room		
22	Springer Open Access		

23	ArXiv.org		
Others (Please specify):			

19. Limitations / Barriers in providing access to E-resources during Covid-19 Pandemic.

(Please use the rating scale for answering these questions, 1 = Strongly agree, 2 = agree, 3 = neither agree nor disagree, 4 = disagree, 5 = Strongly disagree)

S.N.	Factors	1	2	3	4	5
1	Lack of Necessary Infrastructure in the Library					
2	Lack of Knowledge of E-resource availability					
3	Lack of Skilled human resources in libraries					
4	Lack of managerial skills in library staff					
5	Problems related to software					
6	Inadequate budgetary allocations for E-resource collection and management					
7	Lack of interest of the library users for E-resources					
8	Indifferent attitude of the Institute Management towards E-resources					
9	Lack of Institution Policy for E-resource					
10	Integration of E-resources with the traditional resources					
11	Lack of professional skills					
12	Lack of knowledge of changing technology					
13	Lack of ICT training and skills to library staff					
14	Training needs of library staff are often ignored in the academic institutes					

20. Please give your valuable suggestions (if any)

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.....
.....

(Signature and Seal of the Librarian)

Dated –

QUESTIONNAIRE FOR PROFESSIONAL STAFF

Name	
Designation	
Contact No.	
Email (optional)	

1. “Were you happy to provide extra library services to users during Covid-19 period?” What do you think about this?

S. N	Opinion	Tick (✓)
1	Strongly agree	
2	Agree	
3	Neither agree nor disagree	
4	Disagree	
5	Strongly disagree	

2. How stressed were you due to work overload during corona period?

S.N.	Stress Level	Tick (✓)
1	Extremely	
2	Very	

3	Moderately	
4	Slightly	
5	Not at all	

3. Did you follow all the rules of prevention from corona under the Covid-19 protocol before entering the library?

S. N	Opinion	Tick (✓)
1	Strongly agree	
2	Agree	
3	Neither agree nor disagree	
4	Disagree	
5	Strongly disagree	

4. Before entering the library, did you motivate all the users to strictly follow the rules to protect against Covid-19?

Yes ()	No ()
---------	--------

5. How was the superior authority's behavior towards you due to excessive work during Covid-19?

S. N	Opinion	Tick (✓)
1	Much better	

2	Somewhat better	
3	Stayed the same	
4	Somewhat worse	
5	Much worse	

6. How aware are you about ICT tools?

S. N	Level of Awareness	Tick (✓)
1	Extremely Aware	
2	Very Aware	
3	Moderate	
4	Slightly Aware	
5	Not at all aware	

7. Are you satisfied with the decisions taken by the library management?

S. N	Satisfaction Level	Tick (✓)
1	Strongly agree	
2	Agree	
3	Neither agree nor disagree	
4	Disagree	
5	Strongly disagree	

8. How has been your attitude towards providing service to library users during Covid-19?

S. N	Satisfaction Level	Tick (✓)
1	Highly satisfied	
2	Satisfied	
3	Partially	
4	Dissatisfied	
5	Highly dissatisfied	

9. How effective was the online medium to providing library services to the end users during Covid-19?

S.N.	Level of Effectiveness	Tick (✓)
1	Extremely Effective	
2	Very Effective	
3	Moderately Effective	
4	Slightly Effective	
5	Not at all Effective	

10. Challenges faced during Covid-19 Pandemic.

(Please use the rating scale for answering these questions, 1 = Strongly agree, 2 = Agree, 3 = Neither agree nor disagree, 4 = disagree, 5 = Strongly disagree)

S.N.	Challenges	1	2	3	4	5

1	Work load increases					
2	Financial problems					
3	Health problems					
4	Mentally stress					
5	Strict rules to enter the library					
6	Lack of awareness about ICT tools					
7	Provide online facility to users					
8	Any Other please specify:					

11. Problems / Difficulties you faced to provide Library services through online mode during Covid-19:

(Please use the rating scale for answering these questions, 1 = Strongly agree, 2 = Agree, 3 = Neither agree nor disagree, 4 = disagree, 5 = Strongly disagree)

S.N.	Problems	1	2	3	4	5
1	Lack of time					
2	Lack of e-resources					
3	Lack of Knowledge of Using e-resources					
4	Lack of awareness about ICT tools & techniques					
5	Lack of cooperation from users					

6	Low Speed of Internet					
7	Lack of infrastructure					
8	lack of cooperation from library authority					
9	Any Other please specify:					

12. Limitations / Barriers you feel for management in library at the time of Covid-19 Pandemic.

(Please use the rating scale for answering these questions, 1 = Strongly agree, 2 = agree, 3 = neither agree nor disagree, 4 = disagree, 5 = Strongly disagree)

S.N.	Factors	1	2	3	4	5
1	Did not get salary on the time					
2	Uncomfortable					
3	Lack of training programs about newly ICT application					
4	Lack of support from the authorities					
5	The system of protection from covid-19 in the library was not good					
6	Lack of Time management					
7	Any Other please specify:					

13. How you felt about your experience of working in the library during Lockdown and Covid-19 period overall?

S. N	Your opinion	Tick (✓)
a	It was a positive experience	
b	It was totally negative experience	
c	Neither positive nor Negative	

14. Please give your valuable suggestions (if any)

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Dated -

(Signature of the Professional Staff)