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# **Impact of COVID-19 on Central University of Gujarat Research Scholars' Access to Library and Resources: An Objective Study**

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## **ABSTRACT**

*Currently, the world is under seize by COVID-19 pandemic. The subsequent lockdown due to the pandemic has affected all the sectors across the globe. Higher education is one of the sectors that has been majorly impacted, like never before. Due to the shutdown of Educational institutions, students are not able to access the print resources and digital resources provided in the physical Libraries of their institutions. The present paper is an attempt to study the problems faced by the research scholars of the Central University of Gujarat (CUG) with regard to their access to information resources due to the on-going pandemic.*

**Keywords:** COVID-19, Library Resources, Remote Access

## **INTRODUCTION**

The World Health Organization (WHO) first declared COVID-19 as a world health emergency in January 2020 since the virus was first identified in Wuhan, China. As Covid-19 has already become a key reason for closing educational institutions in the 2<sup>nd</sup> week of March 2020, the pandemic has significantly disrupted the research programmes in the higher education sector. Further, most of the Governments around the world have temporarily closed educational institutions to contain the spread of COVID-19 pandemic. The Indian government too, as a part of the nationwide lockdown has closed all educational institutions, as a consequence of which learners, from school going children to Research students, are affected to a great extent. Especially, the research scholars are facing challenges as they are not having the physical access to the information resources of their libraries.

Covid-19 has prompted experts to rethink the conventional mode of education. The adoption of Digital education by various levels of the education sector appears to be a viable solution to fill in the void for continuing education. But when it comes to accessing physical reading/information resources, it is too difficult for research scholars without physical access to Library (as there is no alternative solutions for purely physical resources). The focus on E-resources, brings to the forefront the various hurdles that need to be overcome and those research scholars who are in the phase of primary data collection and have had to face a lot of problems due to the closure of various institutions and non-availability of the required personnel due to the pandemic.

## **STATEMENT OF THE PROBLEM**

The Problem taken up for the present study is the lack of awareness as to how to go about their research activities involving information resources among the research scholars in the absence of physical access to the library and its resources. The purpose of the study is to identify the

challenges faced during the COVID-19 pandemic in carrying out their research work such as literature review, data collection, data analysis, fellowship, professional interaction, awareness and access to E-resources etc. and the level of satisfaction and the awareness among the researchers enrolled in various research programmes of Central University of Gujarat. Hence the study is entitled as “**Impact of COVID-19 on Central University of Gujarat Research Scholars’ Access to Library and Resources: An Objective Study**”.

## **OBJECTIVES OF THE STUDY**

The main objectives of the study are:

- To examine the challenges faced by Research Scholars to access information sources during the pandemic.
- To study the effects of pandemic on Research scholars’ access to physical library of the university.
- To study the perceptions and awareness about E-resources & remote access among the research scholars.
- To study the type of scholarly resources being used during pandemic by the research scholars.

## **LIMITATIONS OF THE STUDY**

Owing to paucity of time, this study covered only the Research Students enrolled in the various research programmes of CUG. and the study covers only 72 Students’ responses received out of the 100 questionnaires distributed among the research students.

## **METHODOLOGY**

The study intends to measure the awareness and perception of researchers without physical access to the library of Central University of Gujarat, Gandhinagar, India during the pandemic. The method adopted for the present study is survey method. The respondents of the study were the research scholars of all disciplines of the university. The study is mainly based on the primary data collected through questionnaires from the respondents. A structured questionnaire was used to collect the data from the respondents. An online questionnaire was designed and developed using Google Forms and distributed through Email to 100 researchers, which included 60 Ph.D. research scholars and 40 MPhil research scholars. 72 filled questionnaires (50 Ph.D. research scholars and 22 MPhil research scholars) with 72% response were finally considered for analysis.

### **Analysis Tools**

Data obtained from the respondents was entered in Microsoft Excel 2019. Frequency and descriptive analysis were done by using excel formula to calculate Percentage, Ratio etc.

## **DATA ANALYSIS**

The data collected was analysed and the same is presented below:

### **Response Ratio:**

The overview of the sample chosen for the study and the response received from the sample through the questionnaires is presented in table 1.

**Table-1 Response received from the sample through the questionnaires**

Sl. No.	Academic/Research Programmes	Total Questionnaires Circulated	Number of Responses Received	Percentage
1	M.Phil.	60	50	83.33%
2	Ph.D.	40	22	55%
Total	Total Responses Received	100	72	72%

Table-1 shows the response rate of the research scholars of Central University of Gujarat. A total of hundred questionnaires were distributed and 72 filled Responses were received. The 72% response rate from the respondents of Central University of Gujarat shows that the response rate of the scholars was very good.

**Gender wise responses:**

An effort is made to present the gender wise response in Table 2.

**Table-2 Gender wise response**

Sl. No.	Gender of Respondents	Responses Received	Response (in Percentage)
1	Male	43	59.72%
2	Female	29	40.27%
3	Other	0	0%
	Total	72	100%

Table 2 reveals the academic status and gender wise responses received through the filled questionnaires. As it is shown through the above table, total 59% respondents were male respondents and 40% female respondents were female ware fill-up the questionaries.

**Present residence: (During the Pandemic)**

Since research programmes are time bound, scholars continued working on their research and therefore an attempt was made to understand where they stayed during the pandemic period. Table 3 presents the data of the same:

**Table-3 residence During the Pandemic**

Residence	No.	Percentage
Hostel	27	37.5%
Private Room	9	12.5%
Home	36	50%
Any Other	0	0%
Total	72	100%

Table 3 reveals that during the pandemic, the university campus, hostels, canteens, and the Library were closed and very few students stayed in the city. As is shown through the above table, out of 72 students 36 (50%) students went to their hometowns, 9 (12.5%) students were staying in private rooms and 27 (37.5%) students continued to stay on in the hostel due to lack of transport services during the pandemic.

**Rate of Effect of the pandemic:**

Attempt was made to understand the extent of pandemic effect on the scholars' overall activities. It is presented in table 4.

**Table-4 Pandemic effect on the scholars**

Rate	Responses	Percentage
Not at all	6	8.33%
Somewhat affected	30	41.66%
Highly affected	36	50%

Table 4 reveals that during the pandemic the research scholars' activities were affected and also their research work. As it is shown in the table 36 (50%) Students were highly affected, 30 (41.66%) Students were Somewhat affected and 6 (8.33%) respondents expressed that they were not at all affected during the pandemic.

### Access to Internet connectivity

**Table-5 Access to Internet**

Access to Internet connectivity	Responses	Percentage
YES	45	62.5%
NO	27	37.5%
Total	72	100%

Access to the Internet and digital technologies is extremely essential for most of the researchers during the pandemic in day-to-day life. Technology is a key enabler for the exercise and enjoyment of human rights, particularly the right to freedom of expression and information. During a public health emergency, access to the internet becomes more of an essential tool for protecting health, including our social and economic rights even though everyday movements are restricted.

Table 4 reveals that during the pandemic 45 (62.5 %) research students are affected due to poor Internet connectivity. It shows lack of efficient digital infrastructure which leaves research students unconnected as they are unable to use all those services which require a high-quality internet connection. In a developing country like India, Government and institutions need to improve the digital infrastructure for access to high-quality internet connection. The pandemic has highlighted how essential access to the internet and digital technologies are specially to research communities.

### Communication with Supervisors, Family and Professionals

An effort was made to understand how communication took place between the research scholars and their continuing to stay in touch with friends for professional interaction/ Librarian and Library Staff/ research supervisor or faculty.

**Table-5 Communication Mode**

	Professional interaction with peers		Communication with Librarian/Library Staff		Communication with research supervisor/faculty	
	NO.	%	NO.	%	NO.	%
Through telephone calls	55	76.39	11	15.28	65	90.27
Through video calls	34	47.22	1	1.39	13	18.05
Through email	39	54.17	60	83.33	58	80.55

Through CUG Blog	3	4.17	11	15.28	3	4.16
Through WhatsApp	57	79.17	6	8.33	45	62.5
Through postal mail	1	1.39	2	2.78	1	1.38
Any other mode	2	2.78	3	4.17	2	2.77

For continuing the research work, it is necessary to stay connected with the supervisor, faculty members, Librarian, Library Staff and friends for guidance and professional interaction. Table 5 reveals that during the pandemic more than 90% stayed connected for professional interaction through telephone calls and email.

### Continuity of Research Work

It was felt that information regarding the continuity of research work need to be collected despite the challenges of pandemic. The responses of the same is presented in Table 6:

**Table-6 Continuity of Research Work**

Responses	No.	%
YES	44	61.11
NO	28	38.89
Total	72	100

Table 6 reveals that during the pandemic 44 (61.11%) students were continuing with their research work and 28 (38.99%) students were affected, especially those who were in the process of collecting their primary data and also those who were engaged in experimental work in the laboratories.

### Fellowship related Issues:

Many of the research scholars get different kinds of fellowships or financial support. Information regarding hurdles faced in receiving the fellowship was also collected which is presented in Table 7.

**Table-7 Fellowship related Issues**

Responses	No.	%
YES	16	22.22
NO	56	77.78
Total	72	100

Table 7 reveals that during the pandemic, 56 students (77.78%) out of 72 research students, were having no issues regarding disbursement of their fellowship and only 16 (22.22%) students were facing problems regarding their fellowship.

### Reading and Resources

Information regarding the preferred place for Reading their research related resources was also collected through the questionnaire. The same is presented in Table 8.

**Table-8 Preferred place for Reading**

Place	Responses	%
Library	52	72.22

Internet café	13	18.05
Home	17	23.61
Department/School/Centre/VL RC	39	54.16
Others	5	6.944

The study revealed that most of the research scholars accessed most of the information resources in the physical library before the pandemic, when library was open it was found that 72% of the students were using library for reading purpose and 54% of the students were using their Department space, School space, or Centre facilities and also in VLRC for using the reading related resources.

### **Awareness about Library's online access to E-Resources/ Remote Services/ Open Access Resources in your area of research**

A focussed effort was made to find the level of awareness among the research scholars about the Library's online access to E-Resources/ Remote Services/ Open Access Resources in their areas of research. The information collected in this regard is presented as Table 9 below:

**Table-9 Students' Level of Awareness (E-Resources and Remote Services / Open Access Resources in their areas of research)**

Students' Level of Awareness	Part-A		Part-B	
	E-Resources and Remote Services		Open Access Resources in their areas of research	
	Responses	%	Responses	%
Fully aware	35	48.61	29	40.27
Moderately aware	31	43.06	37	51.38
Not aware	6	8.33	6	8.33
TOTAL	72	100	72	100

Table 9 reveals that in Part-A of the questionnaire, regarding level of awareness about e-resources and remote services provided by the library, only 35 (48.61%) students were fully aware about the E-Resources and Remote Services, while 31(43.06%) students were moderately aware and surprisingly only 6(8.33%) students were not aware about the E-Resources and Remote Services of the library. E-resources are the backbone specially in unexpected situations like the pandemic due to very limited or maybe no access to the physical library. Remote login access to e-resources is the best practice of any library at any given point of time. It gives an opportunity for the optimum use of the e-resources and offers easy access to various resources of the library through its interface from anywhere.

Responses in Part- B of the questionnaire regarding awareness about open access resources in their research areas reveals that 29 (40.2%) students were Fully aware, while 37 students (51.38%) were Moderately aware and 6 (8.33%) research students were Not aware about Open Access Resources. Open Access Resources are available in various forms and types such as e-journals, e-books, Electronic Theses & Dissertations, Directories, e-print archives, digital repositories, open education resources, search engines and blogs etc. without any charges or any barrier to access with copy right license.

## Use of Library's Resources online and the Remote Services

The next information sought was on the use of library's resources through online and remote services. The same is presented in Table 10 below:

**Table-10 Use of Library's Resources online and the Remote**

	<b>Responses</b>	<b>%</b>
Regularly	36	50.00
As & when need be	15	20.83
Hardly used	16	22.22
Not used	5	6.94
Total	72	100.00

Table 10 reveals that 36 (50%) students were using Library's Resources online via the Remote Services, while 15 (20.83%) students were using only when they needed and 16 (22.22%) students were hardly using any of the library services online.

## Assessing the Library's Remote Access Facility

When the respondents were asked as to what was their assessment regarding the library's remote access facility, the following responses were received.

**Table-11 Assessing the Library's Remote Access**

	<b>Responses</b>	<b>%</b>
Excellent	6	8.33
Very good	14	19.44
Good	18	25.00
Satisfactory	20	27.78
Poor	14	19.44
Total	72	100.00

Table 11 reveals that approximately 20% of students were not compatible with Remote Access Facility provided by library. Hence there is a need to make the remote access facility more user friendly and dynamic.

## Library usage before Pandemic:

To realize the difference in usage, the research scholars were asked about their using the Library usage before the outbreak of the pandemic. Their responses are recording in Table 12 below:

**Table-12 Library usage before Pandemic**

	<b>Responses</b>	<b>%</b>
Daily	40	55.56
Weekly	15	20.83
Fortnightly	3	4.17
Monthly	7	9.72
Occasionally	7	9.72
Total	72	100.00

Table 12 reveals that all research students were using the library resources (both electronic and physical resources). Out of 72 students, 40 (55.55%) students were using the library resources on a daily basis, 15 (20.83%) students were using the library resources on a weekly basis and 7 (9.72%) students were using on a monthly basis.

## Objective of using Library Resources for research

**Table-13 using Library Resources for research**

Objectives	Responses	%
For literature review	64	88.88
Access latest publications in the area of research	59	81.94
To understand research methodology used by other researchers	39	54.16
To be up to date regarding current affairs	23	31.94
Leisure reading	16	22.22

Table 13 presents the objective behind use of Library Resources for their research related work. As shown in the above table, out of 72 students, 64 (88.88%) students used library for finding information for Literature review of their topic, while 59 (81.94%) students used library to access latest publications in area of their research and also few students were using the library to understand research methodology used by other researchers, while few expressed that they wanted to be up-to-date regarding current affairs and also for Leisure reading purpose.

## Duration of visit in the Library/ Virtual Learning and Resources Canter (VLRC) before pandemic

The response to the query regarding the duration of the visit to the library or the VLRC before the pandemic to make a comparison has been recorded in Table 14 below:

**Table-14 Duration of visit in the Library and VLRC in a week, before the pandemic**

	Library	%	VLRC	%
1-2 hrs	11	15.28	20	27.78
3-5 hrs	20	27.78	11	15.28
5-10 hrs	18	25.00	10	13.89
10-15 hrs	8	11.11	5	6.94
16-20 hrs	4	5.56	2	2.78
21-25 hrs	4	5.56	2	2.78
>25 hrs	7	9.72	4	5.56
Do not visit	0	0.00	20	27.78
Total	72	100.00	72	100.00

Table 14 reveals that all research students visited the library regularly before pandemic. As presented in the above table, 20 (27.78%) students were visiting for 3-5 hours followed by 18 (25%) students who were visiting the library for 5-10 hours in a week, before the pandemic.

The study also tried to find out the borrowing status by the research students and the same is presented in the table below:

**Table-15 Borrowing status in a week from your Library, before pandemic**

books	Responses	%
Less than 5	55	76.39

6 to 10	13	18.06
11 to 15	3	4.17
16 to 20	0	0.00
21 to 25	0	0.00
More than 25	1	1.39
Total	72	100.00

Table 15 presents the status of the books borrowed in a week from the library. As presented in the above table, 55 (76.39%) students were issuing 1-5 books followed by 13 (18.06%) students issuing 6-10 books.

### **Resources preferred/used during the pandemic**

Table 16 presents the information collected from the research scholars regarding the various types of resources preferred and used by them during the pandemic situation.

**Table-16 Resources preferred/used**

<b>S. No.</b>	<b>Resources</b>	<b>Usage statistics</b>	<b>%</b>
1	Open Courseware	11	15.27
2	E-Books	55	76.38
3	Institutional Repositories	12	16.66
4	E-Journals	58	80.55
5	Electronic Theses & Dissertations	21	29.16
6	Online Tutorials	23	31.94
7	Open Access Digital Libraries	19	26.38
8	Online Reference Tools	10	13.88
9	Reference Management Tools	10	13.88
10	Plagiarism Detection Tools	13	18.05
11	Journal Selection Tools	10	13.88
12	Manuscript Editing Tools	4	5.55
13	Citation Measurement Tools	8	11.11
14	Open Archives	17	23.61
15	YouTube Videos Classes	40	55.55
16	Subject Gateways	7	9.72

**Figure-1 Resources preferred/used**

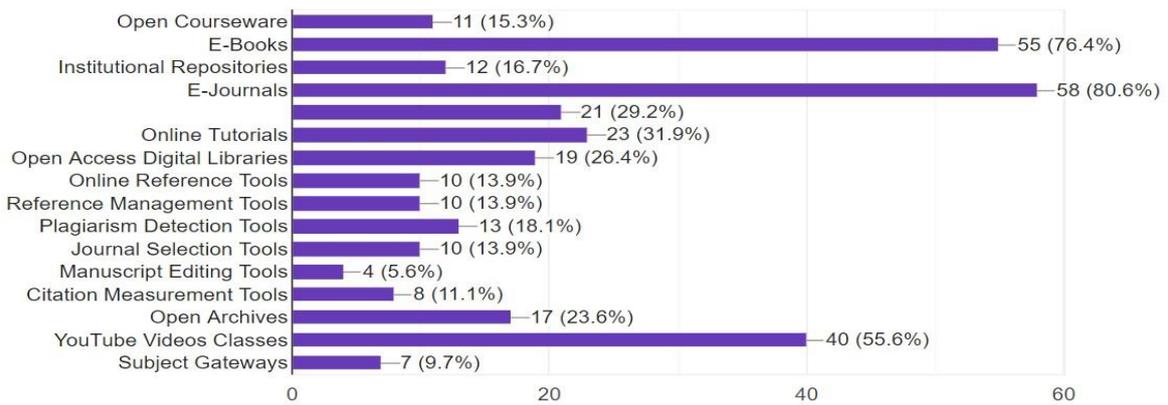


Table 16 and figure 1 show the use of E-Journals and E-Books has increased due to lack of access to the physical library due to the pandemic situation wherein most of the, educational institutions across the country were closed. Interesting video streaming sources like you Tube have widely gained popularity due to the availability of tutorials by various subject experts. Many of the research students have utilized time to enrol for online courses on SWAYAM, Coursera and edX which may help them with their research work as well as to keep themselves UpToDate in their own areas of interest. Overall, the research students have made attempts at trying various digital tools like open archives, digital libraries, reference tools, etc. which is an essential part of research. Students were stuck at home, with a lot of free time on their hands. Most of the higher educational institutions have opened their central facilities with restricted access for a limited duration but due to the COVID protocols and related restrictions, research scholars are still not able to access the information resources on a regular basis.

**Enrolment to On-line courses during pandemic**

As the use of digital tools and techniques was on rise throughout the pandemic, the trend for enrolling for online courses in their respective disciplines as well as research process was fast catching up. Therefore, the research scholars were quizzed on their participation in enrolment of online courses. The resources are presented in the form of pie chart in figure 2 below:

**Figure-2 Enrolment in On-line courses**

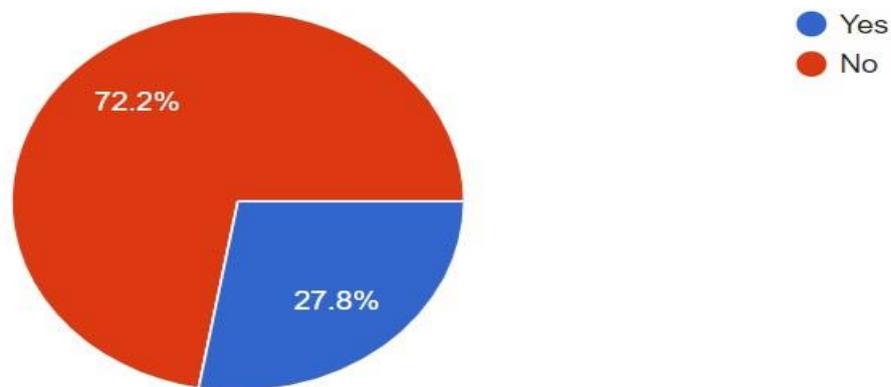


Figure 2 reveals that during the pandemic 52 (72%) research students did not join any online courses and only 27.8 percent of the students joined one or the other online courses.

### Participation in the Webinars during the pandemic

A webinar is an engaging online event where a speaker, or a small group of speakers, deliver a presentation to a large audience who participate by submitting questions, responding to polls, and using other available interactive tools.

Over the past decades, growth in the use of videoconferences and webinars had been at a slow pace. But as numbers show, when the COVID-19 pandemic started early this year, things have really taken off and webinars seem to be the most preferred way of sharing scholarly communication, interaction with professionals and networking with like-minded people.

**Figure-3 Participation in Webinars**

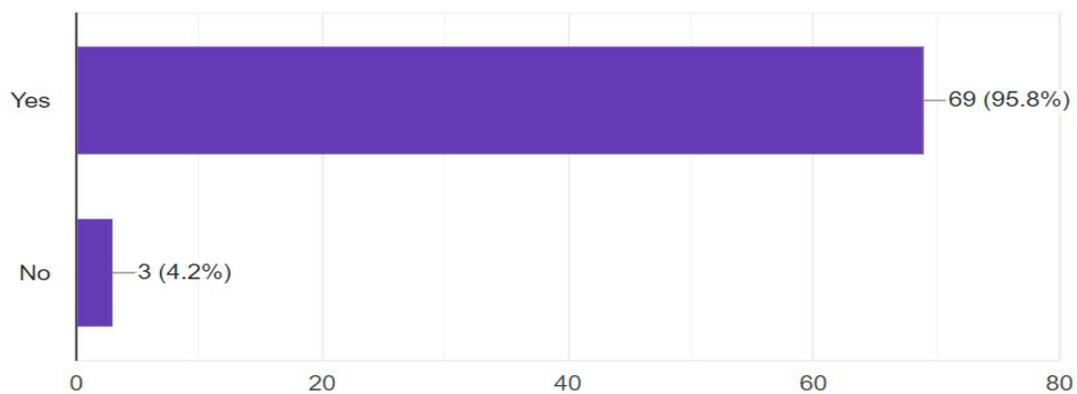
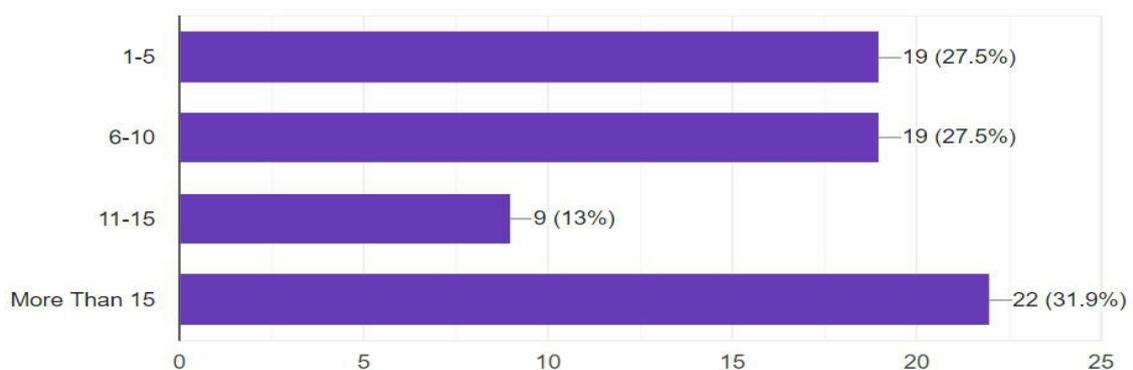


figure 3 shows that 95% of the students joined webinars on various topics ranging from their research area to research skills during the pandemic, which shows that the joining webinar rate of the research students was very good which might be an offshoot of having free time on hand and exploring various platforms of self-learning.

### Webinars attended during pandemic

An effort was made to know the number of webinars attended by the research scholars and the same is presented in figure 4:

**Figure-4 Webinars attended**



Since the appearance of COVID-19 pandemic in the beginning of 2020, conferences, seminars and academic events got cancelled by various international bodies, governments all over the world and even by the Indian government and organizations. To ensure continuity of scholastic activities, alternative modes for communication were explored to keep the learning happening especially in Higher education sector. Therefore, the trend webinars have picked up. the educational institutions have there have moved on and have adopted the webinar strategy for getting benefit of the experts and resource persons from around the world to their students and faculty.

figure 4 shows that 27.5% students were in the range of attending 1 to 5 webinars and, 27.5% students expressed that they joined 6 to 10 webinars during the pandemic while, 13% students joined the range of 11 to 15 webinars and 31.9% students joined more than 15 webinars during the pandemic period.

### Effectiveness of Online resources and online teaching environment

An attempt was made to check the effectiveness of the online teaching environment as well as the use of online resources being as effective as the physical classrooms and accessing resources physically from the library. The same is presented in figure 5:

**Figure-5 rate Online resources**

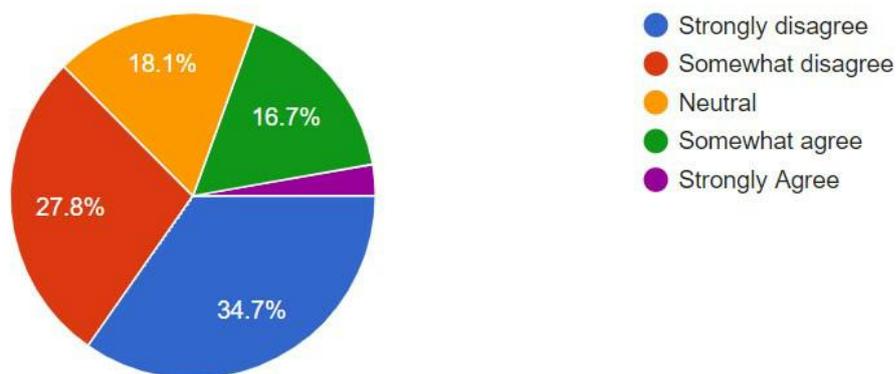


Figure 5 reveals that Online resources and online teaching environment are not effective as compared to the physical classroom learning.

### Major Findings of the Study

The results from the study the regarding the use of information resources by the research scholars of Central University of Gujarat cannot be generalized to reach to a uniform conclusion. According to the responses received and analysed, following major findings can be inferred:

- More than 90% students were affected in some way while doing their research due to the pandemic. 36 (50%) students were highly affected and 30 (41.66%) students were somewhat affected during the pandemic.
- Due to the closure of the university, hostel, canteen and Library during the pandemic, few research students left the campus.
- During the pandemic, 45 (62.5 %) research students were affected due to the lack of poor Internet connectivity.

- During the pandemic, more than 90% of the research students stayed connected through telephone calls and emails for professional interaction with their supervisors and peers.
- The pandemic has highlighted the importance regarding the access to the internet and digital technologies for the researchers' communities.
- 28 (38.99%) research students who were engaged with primary data collection and were involved in experimental work in the laboratories were affected heavily.
- 16 (22.22%) students were facing problems regarding the drawing of the fellowship.
- Approximately 20% of students were not compatible with Remote Access Facility provided by the library indicating that there is a need to make it more user friendly and dynamic.
- 55.55% of the students were using library daily before pandemic.
- 64 (88.88%) students used library resources mostly for Literature review of their topic, while 59 (81.94%) students used it to access latest publications in their areas of research while few students used it to understand research methodology used by other researchers and leisure reading purpose.
- 72% research students joined online courses during the pandemic period.
- 95% of students attended various webinars during the pandemic period.

The study revealed that learning that happens in the physical space is more effective than in the virtual environment.

## **Discussion**

The results from the study indicate that more than 60% students were affected due to poor internet connections. Research students felt unconnected as they were unable to use all those services which required high-quality internet connection. In a developing country like India, Government and institutions need to improve the digital infrastructure for access to high-quality internet connection, especially in the higher education sector. The pandemic has highlighted how essential access to the internet and digital technologies are specially to research communities. More than 90% students were affected in some way while doing their research due to the pandemic. The institution's administration needs to think of alternatives in such challenging situations as to how to aid the research students to continue their research work without any hurdles. In recent decades, in most of the developed countries, the composition of academic library collections has shifted toward electronic format. so, one needs to develop an efficient electronic and physical collection. Library professionals also need think how to provide innovative library services to its patrons in such situations. It is also observed that few students faced problems in accessing e-resources and Remote Access Facility provided by the library indicating that there is a need to make it more user friendly and dynamic. Library professional also need to conduct virtual orientations programs to introduce the library facilities, resources, search strategies, services and library techniques to the users. The virtual orientation programmes familiarize the users with the various kinds of resources available in their respective disciplines and thereby increases the use of library and its resources.

## **Conclusion**

The university library has a significant role to play in providing research support services to the research community in new universities. The library being a gateway to information resources, in a cost-effective and reasonable way, improve learning, teaching and research.

Library professionals need to focus more on acquiring e-resources to enrich their library collections and provide dynamic and user-friendly access of the same to their users. Institutions also need better virtual class room facilities with better digital infrastructure. Since many students studying in public universities belong to rural places, Government and institutions need to improve the digital infrastructure in all rural areas to ensure access to high-quality internet connection to these students in case of emergencies and unexpected situations. It is interesting to note that online classes and webinars have gained massive popularity during the pandemic, mostly due to the mobile technology.

The Questionnaire based study mainly focused on primary data to identify root causes of specific problems from individuals' experiences and opinions. This study will help the academic community to realize the various problems faced by research community during the pandemic though the study has not covered all aspects of access. To encourage future study, it is suggested that a continual update of this study will be done to improve the understanding and there is a dire need to conduct more studies in various institutions for coming up with better solutions for common problems.

### **Acknowledgment**

We would like to express our gratitude to all the Research students who have taken time to answer our questionnaire as well the administration of Central University of Gujarat for allowing us to distribute the questionnaires among research students.

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