

A Detailed Examination of the Covid-19 Pandemic and its Influence on Higher Education in India

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Abstract

The aetiology of the transmissible illness COVID-19 was first noted in December 2019. By March 2020, the World Health Organization (WHO) had classified it as a pandemic. Greater than 5.69 million have received positive test results as of today, May 28. Worldwide cases of the Corona Virus infection are growing quickly. The WHO and governments are working really hard to combat the disease. Understanding the pattern and predicting the virus's global spread is proving to be quite difficult for experts. All the administrative divisions of the respective countries are extremely concerned about the COVID-19 outbreak occurring in various places of the world. India is likewise struggling to control the viral spread and has slowed its rate of expansion by taking certain stringent steps. In this study, The consequences of the COVID 19 pandemic on higher education are assessed, and the difficulties faced by students from different colleges and universities in India who use online learning platforms are recognised. Both essential and secondary information are used for conversation in this explanatory research. Information and data gathered from a review performed among students and teachers at several institutions in India utilising the "Google form, send to students" approach and online structural questionnaire. The learning status of the students was evaluated using a straightforward percentage distribution. It shows that the majority of students use Android smart-phones for online study. Numerous issues have been plaguing the pupils, including a lack of facilities, a chasm between the students and the professors, distractions from the family, etc.

Keywords: Covid-19 Pandemic, Lockdown, Higher Education, India, e learning.

1. INTRODUCTION

In the primary quarter of 2020, the World Health Association proclaimed COVID-19, otherwise called Novel Covid, to be a worldwide epidemic and pandemic. This respiratory illness in people is linked to this infection. India was positioned safely outside the rundown of infected countries overwhelmingly; however recent developments have caused it to bounce up to situate 27, which is cause for caution. Albeit the death rate is currently around 3%, which is better than the worldwide death rate of 5.5%, the spread model is gradually going towards an exponential trend, which might result in a significant loss of lives and infrastructure.

Numerous countries currently view India as a worldwide leader, and, surprisingly, the WHO admitted that the world is shifting focus over to Indian tactics to stop the epidemic's spread. India is the second most crowded country on the planet and makes up around one-fifth of the worldwide populace. India is a great ally for other countries because of its strong ties to the majority of the world's nations, its significant contribution to global GDP, furthermore, its positioning as one of the main developing countries on the planet with respect to economic development rates. As a result, the world community is actively observing and monitoring the COVID-19 outbreak in the Indian region, and there is a need for in-depth logical research based on different techniques sometimes employed by Indian executives. Since March 22, 2020, India has been under a 24-hour lockdown that was extended to a 21-day lockdown after two days. Since then, movements of every kind in India have required approval from different administrative departments, and virtually all local and international travel has either been made illegal or is subject to strict regulations. The third stage of the COVID-19 outbreak, or the local area outbreak, has not yet begun in India, as it is known in other nations, although the number of cases has been steadily increasing.

This essay's goal is to present a fundamental analysis of the issues related to the Covid-19 pandemic's effects on higher education and the abrupt transition of education to an online mode of teaching and learning, as well as the advantages and disadvantages of this mode of delivery, with an emphasis on issues related to digital pedagogy. The article also intends to investigate social justice concerns in relation to India's digital divide. Following the Covid-19 outbreak, it provides significant policy consequences for higher education. The review is based on review-based examination, and the quality of the information sources was carefully considered.

Reliable sources have studied pertinent material to create the paper's strong and persuasive arguments.

1.1. Higher Education in India

India has one of the largest higher education systems in the global higher education network, ranking second. In relation to India, the phrase "higher education" refers to the tertiary level instruction that is offered following 12 years of formal education (10 years of essential education and 2 years of secondary education). There are around 42,000 institutions and over 1000 universities that make up India's whole higher education ecosystem, which offers top-notch instruction. These organisations are all governed by the Ministry of Education.

India's higher education system is the third-largest on the planet in terms of its size, diversity, and the complete number of educational establishments, behind China and the United States. Indian higher education had a huge development after independence.

Higher (tertiary) education in the Indian system begins upon the completion of the 10+2 (ten years of primary and secondary school followed by two years of senior secondary education)). The Indian higher education system is quite complicated. It covers a variety of organizations, like polytechnics, colleges, universities, and foundations of public importance. State universities, deemed universities (aided and unaided), and private universities are only a few of the different organisational forms that exist for universities. Regional colleges, established by the Indian government through a parliamentary demonstration, are in charge of putting together and dispensing the subsidizing required by the University Awards Commission (UGC). India is a federal nation, and the constitution designates education as a joint federal and state responsibility. While the center coordinates and sets norms for higher education and technical preparation, the state is in charge of schooling. Several governing organisations and research councils are in charge of overseeing India's higher education under the department of higher education.

1.2. Objectives of the study

The following goals are the main emphasis of the present research:

- To highlight the various, both positive and negative, impacts of COVID-19 on education.
- To determine the difficulties faced by students from different colleges and universities in India who are using an online learning platform.
- Describe several emerging strategies for higher education in India.

2. LITERATURE REVIEW

Hazem AL-Najjar and Nadia AL-Rousan conducted research on how CoVID-19 is currently spreading. Their research revealed a relationship between the independent and dependent variables. The article included a statistical analysis of the effects of sex, location, infection-causing factors, birth year, and the date the disease was contracted or released on the reported numbers of cured and succumbed cases.

Accurate reasoning based on the forecast of the spread dynamics, according to Cleo Anastassopoulou et al analysis 's of the existing situation, simply cannot be obtained at this time. They also made note of how the unpredictability of publicly available official data would result in inaccurate estimates.

Samrat K. Dey and colleagues attempted to compile and analyze epidemiological outbreak information on COVID-19 utilizing several freely available datasets on 2019-nCoV that they had acquired from Johns Hopkins University, the World Health Association, the Chinese Center for Disease Control and Prevention, the Public Health Commission, and DXY. To analyze the number of different instances identified (confirmed, deceased, and cured) in different areas of China and outside China, an investigative information examination with visual images has been conducted.

Rajan Gupta and associates looked into six different aspects. Forecasts for the number of infected patients in the coming days, the impact of social exclusion on Indian citizens, the impact of major events on the number of infected patients in India, network analysis and pattern mining on those affected by the disease, and development trends of the number of infected patients in India are all displayed, and a review of the procedures for lifting the lockdown in India.

Ahmad Yame compiled a variety of data sources from recent studies and research about the coronavirus disease (COVID-19) conducted all over the world. The extent to which the available data can be used was then examined before talking about data collection planning.

Through a thorough examination of the cases reported in the nation up till 22 April 2020, Sarvam Mittal has developed a measurable framework for understanding the spread of COVID-19 in India. The research and examination of the COVID-19 cases reported in India are being performed using the Exploratory Data Analysis (EDA) method.

Chain-binomial type of the framework, which comprises of brief episodes of high infectivity and nearly constant incubation durations, was explored by Davit Gondauri et al. Using samples of instances collected from various countries, this study paper examines and analyses the data on the COVID-19 Virus spread.

3. RESEARCH METHODOLOGY AND ANALYSIS

This essay evaluates the COVID-19 pandemic's effects on higher education and examines students' perceptions of online learning under a lockdown. It described the difficulties faced by students from different establishments and universities in India who were utilizing an online learning stage. In this study, the impact of COVID-19 on Indian higher education students has been investigated using information and data from both primary and secondary sources. All post-secondary guidance, preparing, and research guidance at educational organizations like universities that are recognized as institutes of higher education by state authorities is referred to as higher education. But for the sake of our study, we only included the broad higher education fields of science, commerce, and humanities.

3.1. Data Collection

The researcher used a descriptive design, a quantitative type, and an indicative strategy during the data collecting for the current study..

3.1.1. Primary data: Students from colleges and universities in India who completed an online structured questionnaire through Google Form provided the primary data. 100 students in total replied positively and gave the survey's full information.

3.1.2. Secondary data: The secondary data were compiled from a variety of sources, including reports from the World Bank, the Ministry of Education's website, numerous magazines, and research papers, as well as documents created by the India government's higher education department. Additionally to using descriptive analysis in this study, students' learning level was evaluated using a straightforward percentage distribution.

3.2. Sampling

Testing was done using the non-likelihood approach because the researcher knowingly chose a sample of kids and teachers from the entire population. The researcher selected a sample of 100 respondents and gave them a questionnaire in order to gather data for an analysis of COVID-19's effects on the higher education system.

3.3. Impact of COVID-19 on Higher Education

Higher education and advancing the economy are positively correlated; higher education is a dynamic idea that is widely acknowledged to be necessary for a country's economic success. Higher education institutions may be impacted by health and economic crises in a number of ways, primarily in the delivery, assessment, and funding of instruction. Since the shutdown, educational institutions have been obliged to switch from in-person lectures to online learning platforms very immediately.

3.3.1. Positive Impact of Covid-19 on Higher Education

The difficulties of the Covid-19 outbreak have been acknowledged by educational institutions, and every effort has been made to offer students with welfare activities. The ensuing points could be viewed as beneficial effects.

- i) **Integrated course:** As more educational institutions adopt digital technologies, they are moving towards integrated learning models. Innovative delivery and assessment methods are being welcomed as educational plan development.
- ii) **Learning Management System (LMS):** Learning management systems usage has created plenty of opportunity for businesses to build out and improve learning management systems.

- iii) **Collaborative effort:** New forms of studying and teaching together are possible. Faculty from around the world may collaborate for the benefit of one another. The two educators and students value the chance to communicate with peers the whole way across the world.
- iv) **Conference, seminar, etc.:** Fundamental pandemic scenarios include E-conferencing, webinars, teleconferencing, and virtual meetings, and seminars.
- v) **Digital literacy:** Following their use of digital technology, students have a strong grasp of digital literacy. Through email, SMS, phone calls, and the use of various multimedia, they divide up digital copies of study materials and analyse pertinent questions quickly.
- vi) **Open and Distance Learning (ODL):** Because ODL mode promotes self-learning and adapts instruction to each person's needs, it is the mode of choice for the majority of students during a pandemic. They have time management skills.

3.3.2. Negative Impact of Covid-19 on Higher Education

The Covid-19 outbreak has had a lot of detrimental effects on education. Among them are:

- i) **Academic activity:** Academic activities are hampered, and the lockdown causes a decline in the academic year, tangibly weakening the education sector. Despite the fact that there aren't many skilled, kind leaders in the household, others who do so out of naiveté.
- ii) **Extemporized intern teachers:** The transition from face-to-face instruction to online instruction is something that intern instructors are preparing for. Most of teachers merely deliver lectures by means of video stages; they don't offer any personalised virtual learning resources.
- iii) **Employment opportunity:** Due to travel restrictions in the pandemic crisis, students who have been dismissed overseas but are returning home have a lower chance of being able to find employment there. Young alumni anticipate a reduction in employment opportunities for the same reason that students recruited through university interviews renege on their commitment to the organisation. As recruitments are delayed, employment progressively decreases. Estimates of unemployment from the Center for Checking Indian Economy increased from 8.4% in mid-March to 23% in early April, while the percentage for metropolitan areas rose to 30.9%.

- iv) **Digital world:** Students who are unfortunate enough to have little or no access to the internet are rarely able to afford the expense of a home computer, PC, or supporting cell phone. Urban and rural, as well as wealthy, pupils experience a digital divide as a result of online instruction and learning..
- v) **International education:** Many Indian students, who studied abroad, particularly in places where the epidemic had a devastating impact, lacked the wherewithal to leave such nations. As a result, it is being thought that demand for higher education abroad will fall.
- vi) **Fees payment:** Numerous parents who are unemployed during lockdown cannot pay the time's expenses.

4. RESULTS AND DISCUSSION

The basic data obtained from the survey is the basis for the information presented below in tables.

4.1. Characteristics of study participants

The character of the students who took part in the online survey is displayed in Table 1. More than two third of the 100 students are female. The average participant age is 21 years old, and 59% of the pupils are under 21. 50% of the students have an academic background in the arts and humanities, while the majority are from another underprivileged class. In terms of family income, 60% of the student participants belong to the income group earning less than INR 15000 per month, and 28% of households fall into the 15000 – 30000 income range.

Table: 1. Characteristics of study members

Characteristics	Frequency	Percentage
Gender		
Boys	18	18%
Girls	82	82%
Age of students		
21 Years	12	12%
Below 21 years	59	59%
Above 21 years	29	29%

Social Group		
SC and ST	5	5%
OBC	90	90%
General	5	5%
Stream of study		
Arts and Humanities	50	50%
Science	40	40%
Commerce	10	10%
Income of the family		
Below 15000	60	60%
15000-30000	28	28%
Above 30000	12	12%

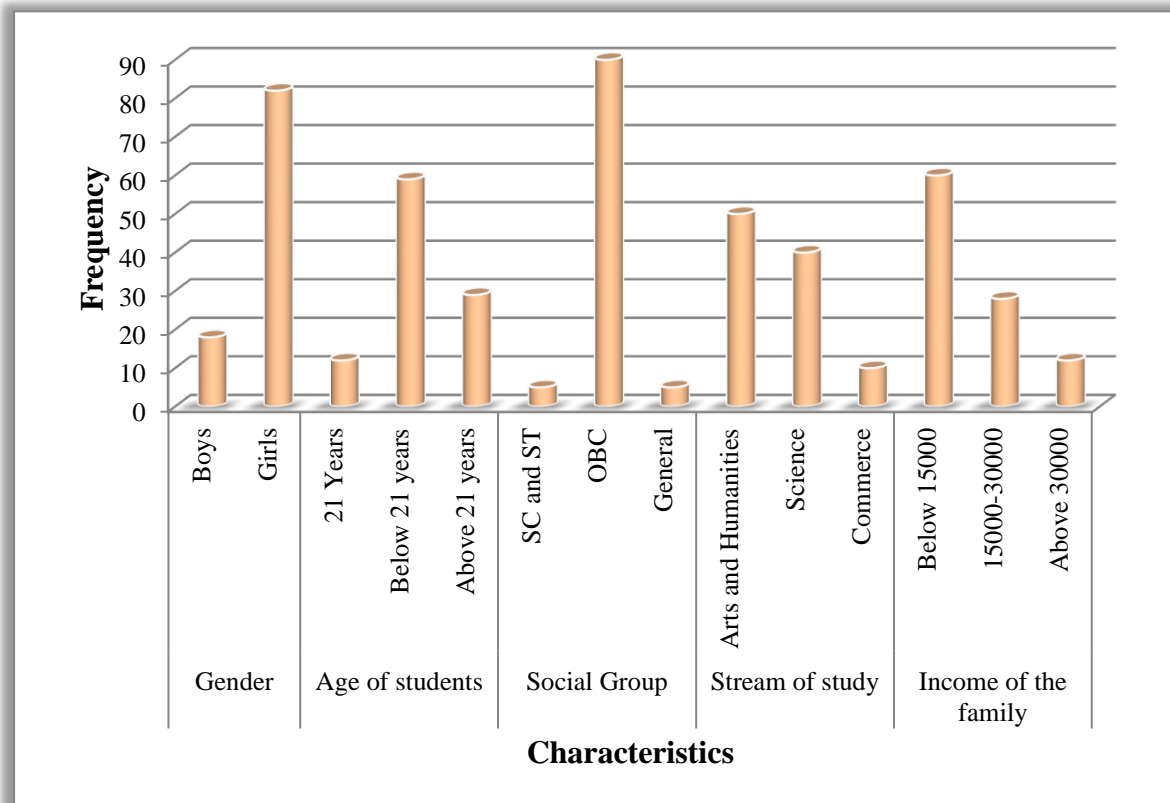


Figure 1: A graphic depiction of the study participants' characteristics

Table 2 shows how COVID-19 affected the participants' families' financial situation. The review reveals that most of survey members' families were impacted by the epidemic. Out of 100, 34 pupils, nearly all of the families had financial difficulties, which had an impact on their schooling.

Table: 2. Impact of COVID-19 on Family's Economy

Opinion	Frequency	Percentage
Do you believe that COVID-19 has had an impact on your family's financial situation?		
Challenges encountered during the shutdown		
Financial	60	60%
Food	11	11%
Health	5	5%
Others	24	24%
Did the lockdown's economic crisis have an impact on your education?		
yes	68	68%
no	32	32%

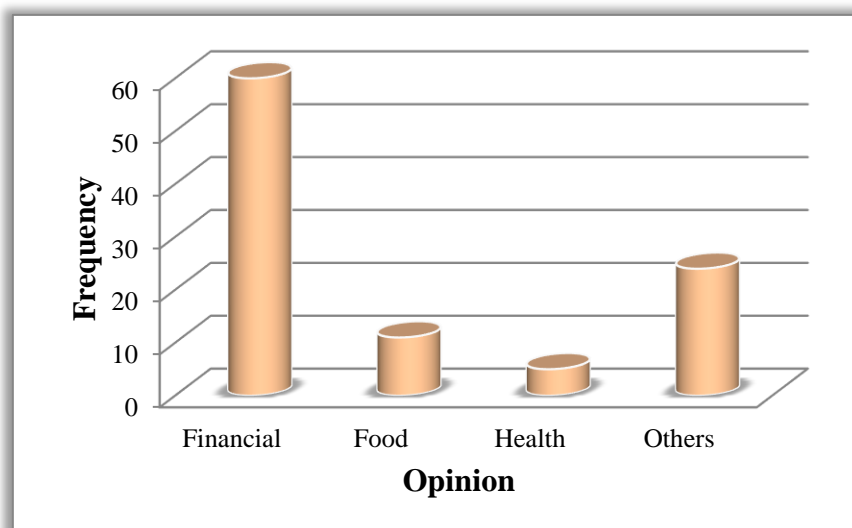


Figure: 2. Challenges that were portrayed graphically during the shutdown

4.2. E-learning during lockdown

Table: 3. before the lockdown, were you familiar with online learning platforms?

Opinion	Frequency	Percentage
Yes	34	34%
No	66	66%

Table: 4. Were you aware of the SWAYAM, DIKSHA, and other government-sponsored e-learning programmes?

Opinion	Frequency	Percentage
Yes	28	28%
No	72	72%

We looked into lockdown kids' e-learning records. The study discovered that traditional classrooms have been replaced with online learning, and that 66% of students had never utilised an internet platform before lockdown (Table 3). SWAYAM (Study Webs of Active Learning for Youthful Trying Personalities), DIKSHA, e-PG Pathshala, Swayam Prabha, E-ShodhSindhu, Public Program on Technology Enhanced Learning (NPTEL), Virtual Labs, etc. are just a few of the online learning platforms and tools that the Ministry of Education has introduced. However, more than half of the study's participants are not familiar with the aforementioned platforms and technologies (Table 4). During the lockout, many students used their smartphones to access online classrooms and learn. Two-thirds of the participants used their personal smartphones to access their online classes (Table 5). India ranks second globally in terms of the number of mobile users. The stage used for most of learning activities was Google Meet, while one-fourth of the students used WhatsApp as a learning stage (Table 6).

Table: 5. Details about the gadget for the online class

Variable	Frequency	Percentage
Device for accessing an online course		
Android mobile	98	98%
Computer or Laptop	2	2%

Availability of technology		
Self	72	72%
Family	26	26%
Friends	2	2%

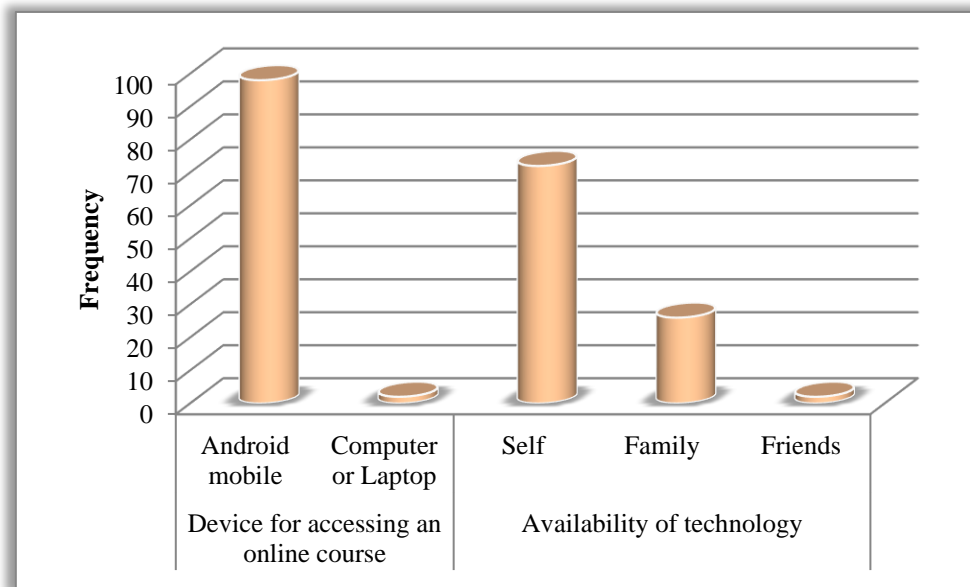


Figure: 3. Information about gadgets presented graphically for an online class

Table: 6. Platform for online instruction

Various platforms	Frequency	Percentage
Google meet	64	64%
Whatsapp	23	23%
Zoom	6	6%
Youtube	4	4%
Others	3	3%

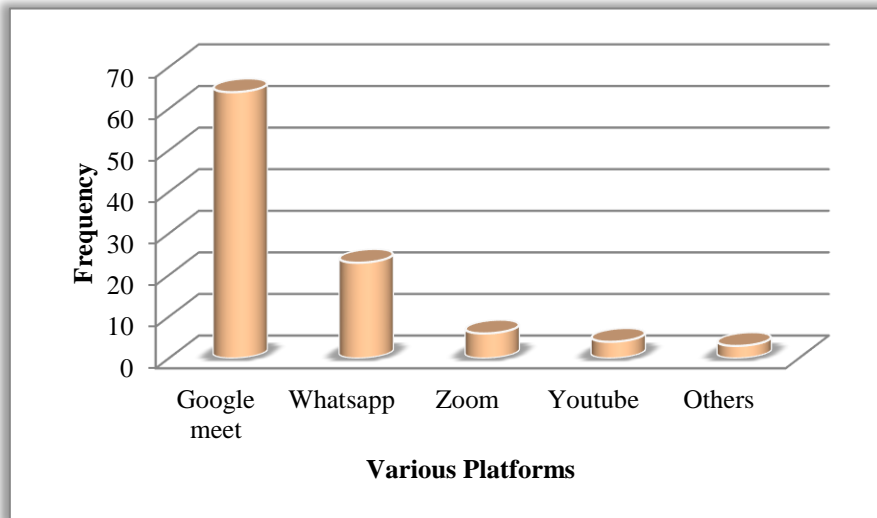


Figure: 4. Graphical illustration of the online course platform

Table: 7. Attendance at online classes on a regular basis

Variable	Frequency	Percentage
Regular	64	64%
Occasionally	26	26%
Rarely	10	10%

Table: 8. the period of study during Lockdown

Variable	Frequency	Percentage
Less than usual circumstance	77	77%
Similar to usual circumstance	18	18%
Greater than usual circumstance	5	5%

64 of the review's 100 members regularly attended online classes (Table7). However, 66% of the students used less time than usual during this time for studying and other related tasks

(Table 8). They have encountered numerous obstacles and problems. This investigation discovered that 86% of students were dissatisfied with the online homeroom system. They also reported issues with stress, despair, and a lack of facilities for the digital infrastructure, such as insufficient interconnectivity and high-quality computerized devices (Table 9). Aside from that, students missed college life, their close-knit group of friends, and the academic environment. In accordance with appropriate precautionary measures, their collective assessment is to reopen the grounds at all levels of higher education.

Table: 9. Satisfaction with online education

Opinion	Frequency	Percentage
Yes	14	14%
No	86	86%

4.3. India's new strategies for higher education during COVID-19

Covid-19 generates a lot of difficulties. The HEIs have positively responded and implemented a number of ways to deal with the crisis during the epidemic. The Indian government has likewise implemented a variety of preventative steps to stop the pandemic COVID-19. For students to continue their education, the MHRD and University Awards Online libraries, e-books and other online teaching and learning resources, educational channels on Direct to Home television, and radios are just a few of the virtual platforms that the United Global Commission (UGC) has built. During lockdown, students use well-known virtual entertainment platforms like Facebook Live and others as part of an online teaching and learning system. The MHRD's ICT effort is a special stage that includes all of the online learning instruments available today (Pravat, 2020a). Every last exam has been moved to July 2020, and it is recommended that classes start in August 2020. Additionally, UGC has created an entire calendar for the 2020–2021 academic year that includes revised dates in light of the shutdown. Some of the UGC and MHRD's computerised initiatives for higher education during COVID-19 are highlighted in the rundown that follows:

- **e-GyanKosh** is a Public Computerized Repository created by the Indian Distance and Open Learning Organizations to preserve and exchange computerized learning resources.
- **Gyandarshan** utilises a web-based television slot to concentrate on the educational and developmental needs for open and distance learners.. A web-based television station that focuses on society's demands for education and development.
- **Gyandhara** is a counselling service that IGNOU offers via voice via the internet. It is an online radio where students can listen to the in-depth talks being held live by professors and subject matter experts on the day's topic furthermore, communicate on the phone with them.
- **Swayam** offers credit transfer for Massive Open Online Courses (MOOCs) that has been recognised by 140 universities. Through 32 DTH channels that broadcast educational information, Swayam Prabha offers first rate educational programming. The author of the prior research revealed the specifics of these three digital platforms (Pravat, 2020b).
- **e-Adhyayan** More than 700 e-Books are available for post-graduate courses on a portal named (e-Books). Every single e-Book is a result of e-PG Pathshala courses. It likewise makes it easier to playback videos.
- **e-Pathya** One of e-PG Pathshala's divisions is called (Offline Access), a software-driven course/content bundle that enables students to continue graduate-level education both locally and virtually. Additionally, it facilitates offline access.
- **National Digital Library of India (NDLI)** is an electronic library of subject-specific content open to all users, including students (of all levels), teachers, researchers, bookkeepers, library patrons, professionals, people with disabilities, and any remaining lifelong learners. It is being developed at the Indian Institute of Technology in Kharagpur. It aims to assist students in preparing for admission exams and other competitive tests, to provide examples for others to and get ready for the best practices from everywhere the world, and to make it easier for researchers to conduct interconnected research from many sources. It is a digital library of educational materials with a single-window search function. Mobile apps can also be used to access it.

- **e-Yantra** offers practical expertise with embedded systems. It has helped more than 2300 colleges and has roughly 380 labs.
- **FOSSEE** is an initiative that encourages the use of open source software for both professional and educational reasons, and stands for Free/Libre and Open Source Software for Education.
- **Virtual Labs** has created web-enabled experiments for an educational plan that are worked for use from a distance. More than 700 web-enabled experiments are available in its more than 100 Virtual Labs, all of which are designed for usage remotely. For a variety of research and engineering fields, it provides remote access to labs. Undergraduate, graduate, postdoctoral, and research researchers are totally served by these virtual labs.
- **e-ShodhSindhu** is an assortment of electronic diaries, diary archives, and electronic books with perpetual access. It has around 31.35,000 e-books and 10,000+ e-diaries. Academic establishments can access great electronic resources, like full-text, bibliographic, and genuine databases, for a discounted membership rate.
- **Shodhganga** is a website where doctoral candidates can post their theses for public access to the entire scientific community. Researchers can submit electronic theses and dissertations to the repository, which it can gather, index, store, share, and preserve.
- **VIDWAN** biographies of scientists, researchers, and other staff members employed by leading universities, R&D organisations, and other groups in India can be found in this famous database and public research network..
- **National Educational Alliance for Technology (NEAT)** is a program that plans to prepare students in the newest technologies through open private coordinated effort between education technology businesses and the Indian government (via its implementing body AICTE). It combines the top technological tools in educational pedagogy on a single stage for the convenience of the students.
- **SAKSHAT** is a one-stop education entrance that may satisfy all of the educational and learning demands of students, researchers, teachers, and lifelong learners. The gateway offers the latest Service of HRD news, press releases, accomplishments, etc. In this way, to understand more about the realm of online learning visit SAKSHAT.

5. CONCLUSION

In-depth examination of the COVID-19 outbreak circumstance in India was provided in this paper. The Administrative unit of India needs to take aggressive control measures because the instances are increasing rapidly. This report describes the many impacts of Covid-19 on higher education in India. The current epidemic gave pedagogical approaches a chance to change and gave virtual education a chance to be presented at every level of school. The current dilemma calls for a gradual shift towards online/virtual education because we are unsure how long the epidemic situation will last. In the study, the lockdown and COVID-19 epidemic's effects on higher education were discussed, demonstrating how they have seriously disrupted academic operations. The study also evaluated how students in India's higher education sector were doing with online learning. Most of students have been seen to be unsatisfied with online education and to be having problems with digital infrastructure. Initial efforts towards online learning were taken in the higher education sector; also, the lockout accelerated the trend. Also, the government ought to address the issues with the advanced divide, strengthen IT infrastructure, and give significant consideration to bettering the circumstances of marginalised people and ghettoised areas.

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