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Impact of Pre and Post COVID 19 On E learning: Student Perspective from Indian Educational Institutions

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Abstract: The covid-19 has disrupted and shaken the entire world. Mostly it has affected learning and teaching of educational institutions. India is now witnessing a rapid shift from traditional chalk-talk teaching model to technology driven E- learning model. While E- learning has been increasing exponentially in recent years, India is now experiencing an E-Learning boom since pandemic has emerged. The E- learning experience has posed some challenges and directions for future of online education. The policy makers are now focusing on scaling and ensuring inclusive E- learning solutions with much updated hands on for both teacher and student. Yet it would be simply to assume that e- learning platform is progressing seamlessly like physical classrooms or not. Thus, objective of our study is to analyse the influential role of covid 19 pandemic in Indian education system specifically among student's cohort, significant contribution to E-Learning mode as a resource of learning. This paper also highlighted how E-learning plays a crucial role and panacea for all educational institutions by analysing awareness of students before and after the pandemic has emerged with insight on challenges and opportunities posed by pandemic. The research is based on both Quantitative and Qualitative Approaches. In this research primary survey and secondary data has approached. Primary Data were collected from 150 students and self-administered questionnaire was adopted to analyse information for the study. Analysis has followed descriptive statistics, gap analysis, scatter diagram.

Index Terms - COVID-19, Indian Education Mode, Online-Learning, Effect of COVID-19 and Challenges.

1. INTRODUCTION

The pandemic has emerged and surges across globally by disrupting economic, social life and almost entire sector. But the impact has transformed education sector tremendously for both faculties and students. The covid 19 induced shutdown of colleges and schools. E- learning is transforming education sector. With the advent of COVID- 2019, online education is bolstered, and it has revived the opportunity for online education and learning. Due to the crisis, online education is booming, and universities are switching to new era of learning and Universities around the world are being forced to adopt e-learning due to this epidemic (UNESCO, 2020). India is witnessing massive changes in curriculum, exam pattern, assessment structure and teaching learning pedagogy. Several school, colleges, universities are forced to adopt remote learning in view of saving life. Amid uncertainty around the world live and livelihood is most debatable topic in current scenario. So there is a pressing demand of innovation and implementation of digital learning. Research posed dearth in areas of challenges of online education like lack of policy intervention, information gap,

poor convulsive culture and weakness in digital infrastructure for academic excellence of higher education. Student satisfaction and learning are influenced by the educator who have immense responsibility to articulate academic content in efficient manner. As pandemic has radically changed the learning process from old chalk model to online technological model, so both student and teacher needed to be well equipped with E- learning. It is imperative to deliver learning experience both in content and delivery through most reachable and accessible manner to all type of student across India. Annually the demand for higher education is rising globally and India is no exception for higher education institution, though universities and colleges are making them averse to these complete changes, but researcher has opined that blended learning can be more beneficial for academic continuity and accomplishment. challenges and opportunities of E-Learning need to be discussed and addressed for embracing E-learning as an innovative tool for educational institutions which is the panacea in an emerging situation of pandemic. so, it is quite crucial to develop scenario planning to frame a robust strategy by identifying awareness and perception of various students about this E- learning for reaping rich benefits out of covid 19 pandemic. our paper aims at discussing perception of students about E-learning and analysing the effect of pre and post covid 19 on E-learning from student perspective of higher education institutions. This study also highlights various measures taken by government of India to control deadly disease and an overview of challenges of E-learning in Indian education system.

1.1 Indian government initiative for covid 19 – Numerous measures was taken by government of India to control the deadly disease which are listed as bellow.

- First, thermal screening at the airport was made compulsory for foreigners and foreign return people and then home isolation for 14 days.
- Foreign and domestic air facilities closed.
- Masks, sanitizers, compulsory maintenance in public places', people with no masks in any public place will be part of the punishment.
- In India, for the first-time restriction was imposed on 22 March 2020, the whole of India remained completely closed and after that the Prime Minister of India declares complete shutdown and closure for the coming 21 days, it Announcement on 24 March. Done since 2020.
- Permission was given for important things so that the public does not face problems, for this, permission was given to open important shops from 7 am to 10 am in which milk, vegetables, medicines, and essential things were provided. The medical facility was done for 24 hours.
- At the time of this epidemic, the Government of India provided essential food items and essential goods to the poor people of the country.
- In India, COVID was divided into 3 zones - Red Zone, Orange Zone and Green Zone. These zones meant Red Zone, most of the COVID patients in the Orange Zone had fewer COVID patients, not Green Zone patients.
- The second lockdown in India was implemented from 14 May 2020 to 31 May.
- Then on 30 May, addressing the country again, the Prime Minister of India extended the lockdown on 30 June, but it was simply for the cantonment area, in places where COVID patients were more. He then allowed the first unlock in his address starting on 8 June.

1.2 Challenges of Online Education-

The challenges of online learning are multifaceted. With the advent of fourth industrial revolution there is a transition from traditional teaching to technological development which is incredible. However, after covid 19 outbreak higher educational institutions prefer online platform like zoom, google meet, while many students face obstacles. In India perspective, there is a big challenge before the students in adopting e-learning because even today the internet is poor as compared to countries like America, Japan, Australia etc. In India, internet speed is good in urban areas, but in rural areas it is still poor due to which there is a problem in effectiveness of e-learning. Few challenges like lack of time in interactive and customised solutions, connectivity issue, lack of awareness and education how to use, incompatibility in subject delivery and content, lack of tools, poor development in strategy for efficient teacher and student exchange,

Technological barriers in rural part of India but opportunities and benefits can also be adhered through addressing these challenges.

2. REVIEW OF LITERATURE –

This section describes the previous research undertaken in virtual learning after pandemic emerged and few research including challenges and opportunities of E- learning including tools and technology in overall. Murgatroid (2020) highlighted basic challenges of affordability and accessibility for learning tools which is prevalent in economically backward sections of society. Learners face issues with internet connection and lack of knowledge in managing online devices with less exposure to pedagogical usage in many developing and underdeveloped countries. flexibility is mostly a crucial problem among learner and teacher. Academic credibility and performance of students shown a declining percentage due to lack of understanding and drop out in online class. Lack of group discussions and face to face interaction learning affects students, Sintema (2020). One shoe can't fit all. So learners' language, literacy, age, subject diversity, need analysis, disability support, diversity inclusion must be addressed in order to build effective learning environment, Doucet (2020). Subedi(2020) Focused on importance of intelligence and interest quotient of students to adopt changes, readiness to learn E-learning tools. These online pedagogies facilitate new opportunities and challenges to increase accessibility and flexibility to learn. Awareness and proper knowledge transfer should be done to support learning process by considering students growth and slow learning mindset to adopt to challenging learning environment. Mishra & Subudhi (2019) highlighted on importance of robust mechanism development for online education on remote and urban areas with latest pedagogical improvement. To create educational institution a place of attractive hub and improve students' engagement, commitment faculties retention is essential. So to create faculties interest in teaching process adequate institutional culture is crucial with ICT development and freedom in career growth to learn new technology. A Mohammed (2020) discussed the problems and dimensions of e-learning, to test its policy for the use of e-learning and to confirm that the e-learning system should be used successfully. It is the responsibility of the university to design and develop the system to provide the full benefit of it. In providing education, the correct map of its rules should be implemented. Development in the system and guidelines should be done to increase the usefulness of the e-learning system among the students. Universities will have to plan for the online learning system for the time ahead. Further research highlights the point of five factors such as technological factors, cultural aspects, trust factors, quality of e-learning and efficiency factors. Basilaia & Kvavadze, (2020) describes three challenges that occur in using e-learning such as issue in management change, technical issue in e-learning system and issue in financial support. It also suggested that if we understand this factor and challenges properly and improve it, then we can prove the e-learning system is sound. Mohammad Mahyoob(2020) discussed that during covid 19 there is a negative impact of e- learning among EFL learners and significant obstacles faced by them includes curricular, technological and interpersonal relationship . The research revealed that much learners are not well familiar with E-learning system as they lack interest in progression of career because of their English language barrier. Sumitra & Roshan(2020) highlighted on importance of E learning in Indian education structure and how it impacts teaching and pedagogical improvements during covid 19.challenges and opportunities being discussed in more lucid manner with insight on future scope of research. Dhawan (2020) discussed on significance of online teaching with SWOT analysis of different e - learning models in the time of pandemic scenario. This article focussed on importance of ED tech start-ups and elaboration of suggestions for overcoming natural disasters which will come across over e-Learning platform in educational institutions. Wolfinger (2016) Discussed over the case approach regarding characteristics of adolescent students and their perception for online learning in Pennsylvania. Petrie(2020) highlighted on requirement of expertise and efficiency on information technology for effective utilisation of online pedagogy and tools for communication with students by educators like canvas, team application, blackboard, video meeting, file storage, audio sharing, online quizzes, games etc.so skill improvement training and workshop needed to bring updated knowledge for assessing students and rubric based assignments submission .Also emphasised on providing resources to teachers with learning strategy ,articles you tube links for better reference.

3. RESEARCH GAP-

Much emphasis and considerable attention was imparted in elaboration of challenges of covid 19 and its opportunities for educational institutions. Research has also conducted in establishing importance of online education, entrepreneurial education, significance of online learning in adolescent learners and their perception on this. Research also explores strength and weakness of E-learning and insight on effective teaching tools, pedagogical strategies development. But lack of examination and research has undertaken in the field of analysing impact of pre and post covid 19 on E- learning from students' perception in higher educational institutions in India. Moreover, the study of information awareness regarding E- learning effectiveness and the gap analysis of adoption of online education has remained untouched. Hence the current paper is aimed to analyse effect of pandemic on e-learning tool of education and how far it has accepted popularity among diverse student group with special reference to India.

4. OBJECTIVES OF THE STUDY

- To explore information awareness of students about e-learning with regards to pre and post 2019 pandemic.
- Analyzing the students' interest and perception about e-learning mode of studies.

5. STATEMENT OF THE PROBLEM

Though there is sound structure of e learning platform is followed in India. However, the urgency of inclusive use of e learning in both urban and rural area is much prevalent now after the outbreak of pandemic. Thus, by considering this scenario our study aims at finding out the impact of pre and post covid 19 on E- learning system among various higher education students. The focus is also to analyse their awareness, perception about e learning mechanism, frequency of usage and dependency on e-Learning platform.

6. RESEARCH METHODOLOGY

Present paper is based on primary data and self-administered questionnaire was followed for drawing perception from graduate, masters and vocational students of higher educational institutions covering different places like Delhi, Varanasi, Nagpur. secondary data is also used for review purpose from internet, newspapers, magazines, and previous published research papers etc. Convenient sampling technique was taken to complete this research. Statistical tools have also been used for analysis such as descriptive statistics, scatter diagram, pie chart and gap analysis etc.

7. RESULTS AND DISCUSSION

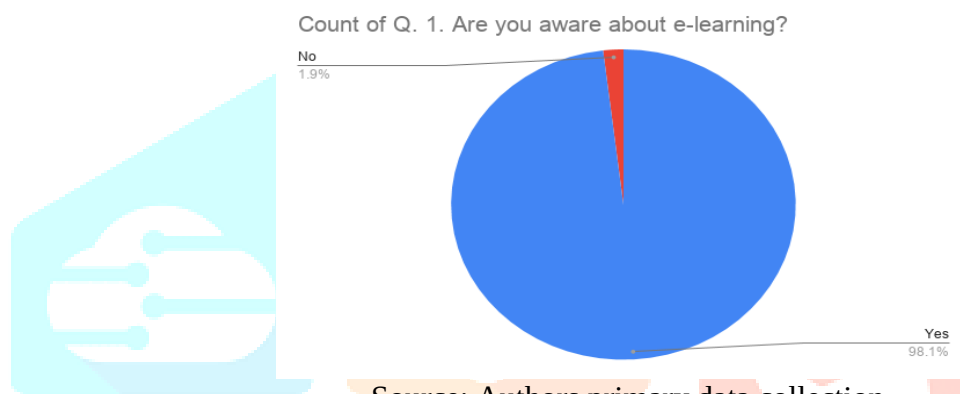
Table 1 Demographic Profile of Respondents

Demographic	Description	No.	%
1. Gender	Male	82	54.6%
	Female	68	45.4%
	Total	150	100%
2. Age	15-20	60	40%
	21-26	35	23.3%
	27-32	30	20%
	33-Above	25	16.7%
	Total	150	100%
3. Occupation	Graduate Students	70	46.7%
	Masters' students	55	36.7%
	Vocational students	25	16.6%
	Total	150	100%

Source: Authors primary data collection

Table 1 depicts the demographic profiles of the respondents like gender, age and occupation. It is important to infer from the table that data has been collected from various universities and colleges for analysing the perception of various students' awareness on e-learning. The analysis of gender from the table reflects that out of total number of respondents 82 numbers are male consist of 54.6 % and 68 numbers are female consist of 45.4 % which is a decent gender distribution. For the distribution of respondents based on age groups, it can be inferred that 60 numbers of respondents which consists of 40 % belong to the age of less than 21 years, 35 numbers of respondents consist of 23.3% belong to 21 – 26 years of age group, 30 numbers of respondents comprise of 20.0% belonged to 27 -32 years of age and 25 numbers of respondents comprising 16.7% belong to more than 33 above years of age bracket in our study. The occupation status of respondents revealed from the above-mentioned table represents that 70 numbers of respondents consisting of 46.7% are graduate students, 55 numbers of respondents consisting of 36.7 % are master's students, 25 numbers of respondents consist of 16.6% are vocational students.

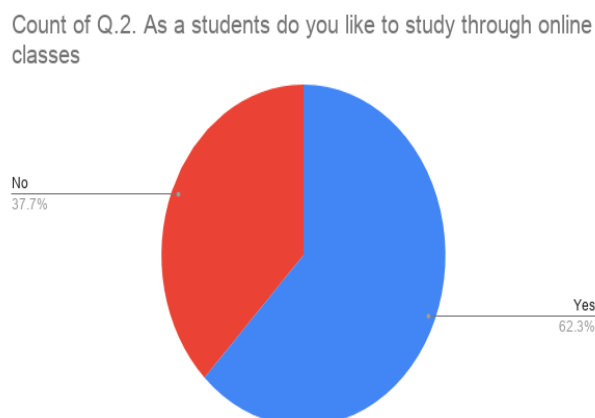
Figure 1 pie chart



Source: Authors primary data collection

This graph illustrated that out of 150 numbers of respondents majority of respondents comprising of 98.1% respondents are aware about e-learning system and only 1.9% respondents are not aware about e-learning, so we can say that e-learning culture will lead to more efficiency in academic performance if it will be streamlined with proper procedure to achieve accessibility and affordability in all parts of India.

Figure 2 pie chart

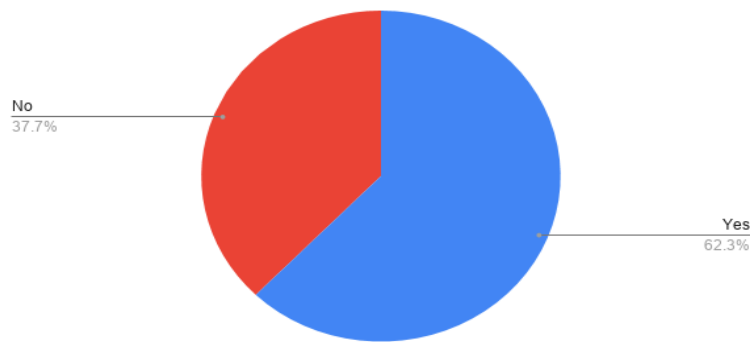


Source: Authors own primary data collection

This graph depicts that out of 150 numbers of respondents majority of respondents comprising of 62.3% respondents have shown their interest to adopt and study through e-learning system and only 37.7 % respondents are not interested in e-learning, So it can be concluded that e-learning culture can be adopted through proper pedagogy, adequate resources, students guidance notes and how to use efficiently. To achieve academic credibility and students engagement educators must develop proper strategy.

Figure 3.

Count of Q.3. Are you aware about Synchronous e-Learning and Asynchronous e-learning?

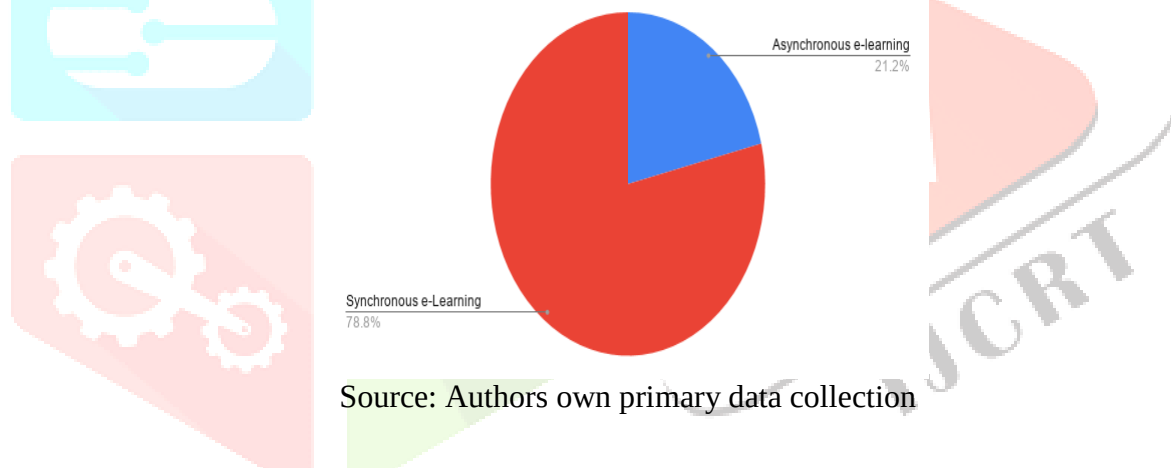


Source: Authors primary data collection

This graph indicates that 62.3% Respondents are aware about Synchronous E-Learning and asynchronous e-learning. 37.7 % respondents are not aware about these two types of e-learning. so it can be suggested that synchronous and asynchronous learning both are essential for educational institutions especially in E-learning. Thus, it is the responsibility of teachers and higher authorities of educational institutions to frame frameworks of designing learning materials in an efficient way to bring two-way learning benefits.

Figure 4.

Count of Q. 4. Which e-learning are more effective in the study.

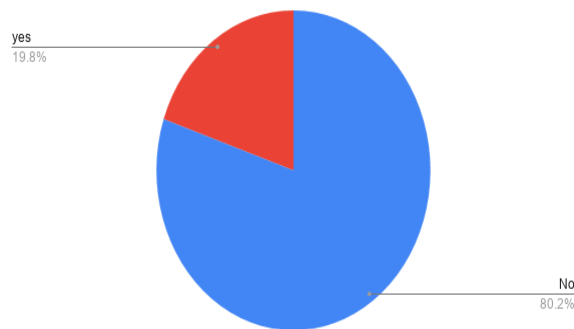


Source: Authors own primary data collection

This graph depicts that out of 150 numbers of respondent's majority of respondents comprising of 78.8% respondents preferred synchronous learning in E learning system and only 21.2% respondents preferred asynchronous learning in e- learning study. So, it can be concluded that e-learning culture could provide many advantages if structured in proper method comprising few guidelines before commencement of class like for asynchronous learning student should be able to complete work as per schedule, immediate feedback, group participation for more convenience. Also, for synchronous learning more instructional materials, group discussion, improved presentation skill must be designed by educators for effectiveness in class delivery.

Figure 5.

Count of Q. 5. What do you think; e-learning will give the same result as going to school/college and studying?

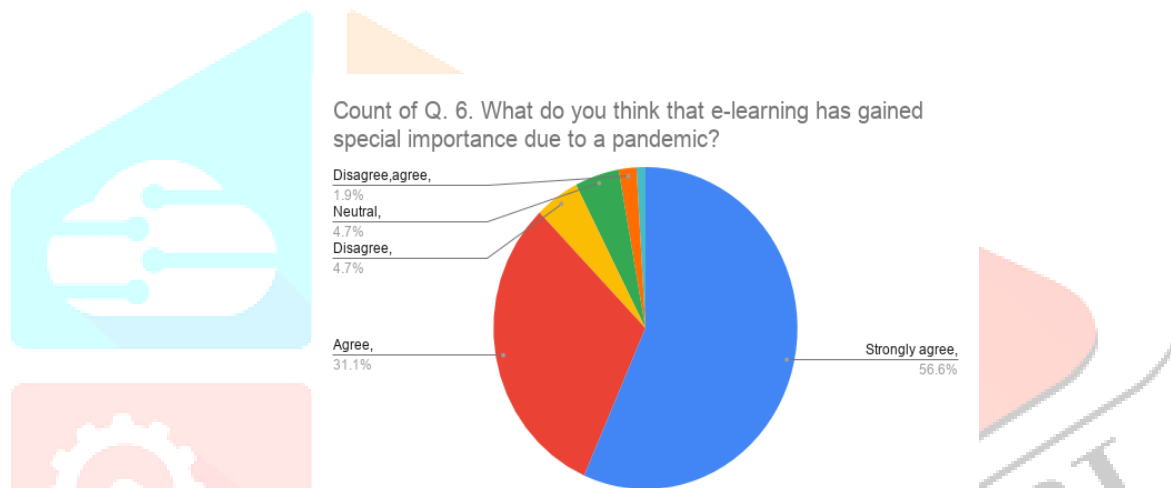


Source: Authors primary data collection

The above graph indicates that the only 19.8% Respondents have opined that E-learning will provide same result and performance as physical classroom study. However, 80.2 % respondents are against this statement that online class will give same result as physical class.

Figure 6.

Count of Q. 6. What do you think that e-learning has gained special importance due to a pandemic?

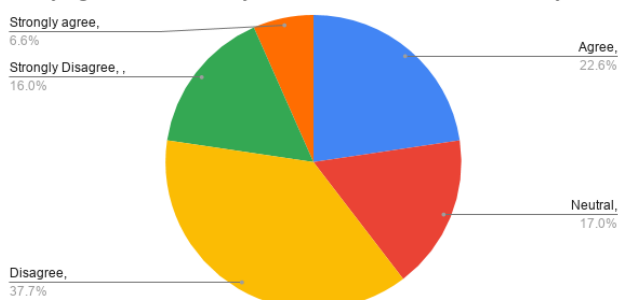


Source: Authors primary data collection

This chart indicates that majority of respondents comprising (56.6% +31.1%=87.7%)) have strongly considered and agree to the factor that e- learning has gained special importance due to a pandemic among students and quite accessible for educational institutions. While (4.7%+1.9% =6.6%) respondents have strongly disagree and disagreed that e-learning has not attracted and gained popularity with high acceptance by the students. On other hand (4.7%) respondents have shown their neutral opinion in this aspect.

Figure 7

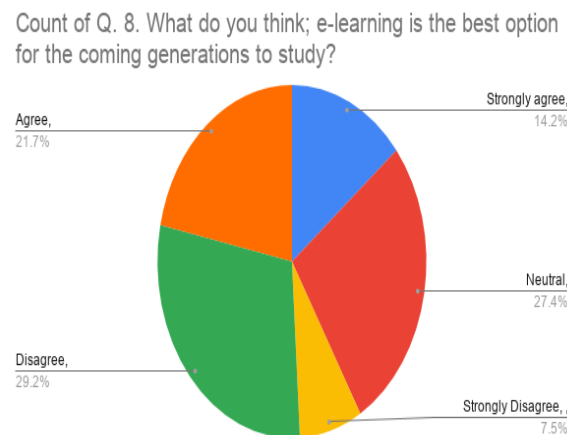
Count of Q. 7. What do you think, through e-learning helps in studying in the same way as in class? As a traditional way,



Source: Authors primary data collection

This pie chart illustrates that majority of respondents comprising ($16\%+37.7\%=53.7\%$) have strongly shown their disagreement and not considered the statement that e-learning provides same learning experience and effective as physical class structure. While Only ($6.6\% +22.6\%=29.3\%$) respondents have strongly agree and agreed that e-learning has matched students' expectation and helps in gaining students attention in comparison to faculties led face to face offline classroom study. On other hand (17.0%) respondents have shown their neutral opinion in this aspect.

Figure 8



Source: Authors primary data collection

The above graph depicts that ($21.7\% +14.2\%=35.9\%$) respondents has given positive consent and agreed that e-learning is the best option for the upcoming generation of study. Also ($29.2\%+7.5\%=36.7\%$) respondents have opined that e-learning stand alone is not the suitable and best alternative for future generations and disagreed to the statement. On other hand (27.4%) respondents remain neutral in this regard to e learning as the best mode of study for future student.

scatter diagrams-

Figure 9.

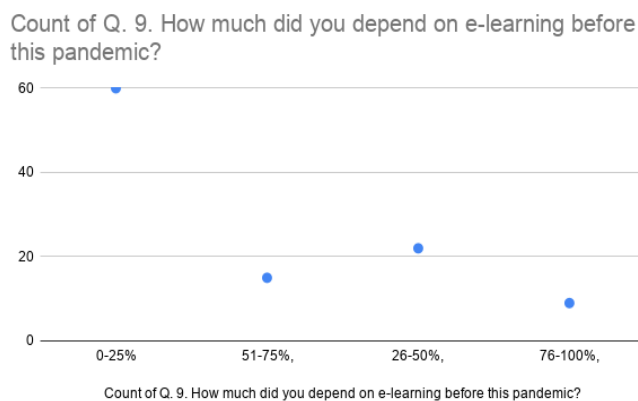
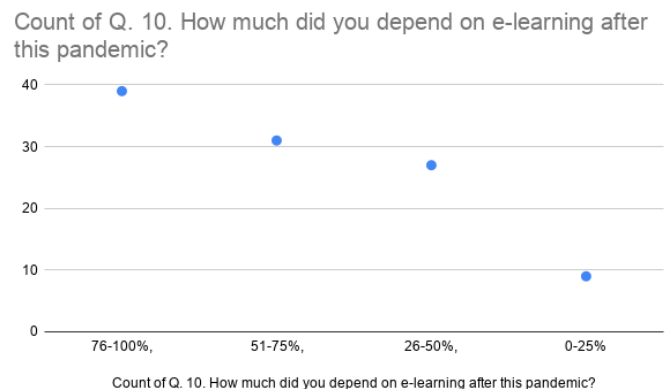


Figure 10.



The scatter diagrams Figure 9 showed the no positive respond of e-learning before the 2019 pandemic, before these pandemic respondents are not much interested to use of e-learning in the study to complete. but in the figure 10 showed very positive relationship between the E-learning and Pandemic 2019 respondents are highly preferred the mode of e-learning to complete of study.

Table 2. Gap analysis on effect of pre and post COVID-2019 on E-learning

Thematic	Before (100%)	After (100%)	Higher	No. of Respondents
0-25%	56.6%	8.5%	48.1%	150
26-50%	20.8%	25.5%	-4.7%	
51-75%	14.2%	29.2%	-15%	
76-100%	8.5%	36.8 %	-28.3%	

Source: Authors own primary data collection

The table above highlight effects of COVID-2019 on E-learning were (0-25%), 56.6% and 8.5%. The gap between before and after for e-learning shows (48.1%) which depicts there was huge gap between before and after COVID pandemic. Thus, preferred mode of study is E-learning. The gap analysis between before and after for E-learning are (26-50%), 20.8% and 25.5% respectively. This reflects there is less gap between before and after for e-learning which is (-4.7%) which means there was insignificant gap between before and after COVID 2019 on e-learning. This highlights that student are much fascinated and interested in e-learning. Whilst before and after COVID, the preferred mode of e- learning study was 14.2%and 29.2% respectively. Therefore, gap between before and after for e-learning study was (-15%) which signify there was gap between before and after COVID 2019.This again discussed respondents preferred E-learning study after COVID Pandemic. Lastly before and after COVID 2019 pandemic the preferred mode of study were 8.5% and 36.8%respectively. Thus, there is a huge gap before and after for E-learning was (-28.3) and respondents preferred E-learning after COVID 2019 pandemic with much popularity

8. DISCUSSION AND CONTRIBUTION-

The present paper focused to investigate the impact of pre and post covid on E- learning system. This study presented the overall awareness of students about learning during covid 19 and how it is a panacea for educational institutions during this crisis. According to results most of the students prefers e-Learning education and importance given to both synchronous and asynchronous learning however in this study students prefer mostly synchronous learning. Regarding preference of E learning as a similar satisfaction mode of learning students have shown their significance to physical classroom teaching. Some students face online education issues, understanding pedagogical adoption, information technology hands on. This study also puts lights on how far E-learning tool will facilitate as a best option for study taking into future generations but at the same time this need much technological outreach and accessibility in all parts of region for effective teaching learning process. Students also focusing the urgency and popularity of e-learning due to pandemic occurrence. Gap analysis also reflects a huge difference in acceptance level of e-learning by students. Students were not much aware and adopted e-Learning as a mode of learning but after pandemic it shows a rising level of interest in adopting the new tool as a comprehensive learning option. Though online learning is not new but its adoptability percentage was insignificant before pandemic and now it has gained much attention .Thus it can be a best option to attract students engagement, participation through two way communication and easy accessibility methods .So to gain satisfaction from students and establishing a sound framework of learning environment among educational institutions various systems and policies should be streamlined for smooth and effective achievement of course delivery, assessment structures, module presentations, attendance checking and observation . providing online courses and study by educational platforms has paved the way for economic and diversity challenges faced by students, so this supported and offering scope for universities to utilise benefits of E- learning after the pandemic has emerged. These findings contributed for future study and rigorous survey of literature from different dimensions of E-learning, learners' perception on various constructs of teaching, significant problems, and

opportunities of online learning during the pandemic and integrative policies enhancement for smooth facilitation of learning across the globe.

9. LIMITATIONS AND SCOPE FOR FUTURE STUDY –

The present research undertaken in the study is compatible with theoretical foundation and also with the fundamental thought on the subject field. Despite this, recent research paper enriches the prevailing literature on E- learning and its impact by covid 19 of higher educational institution by gathering information from diverse students but still it has few limitations. The study was conducted in Delhi state covering few cities and may include other at a more aggregate level. There may be lacuna with the self-reported behavioral aspect which are supposed to be measured by the thought and motive of the respondents, however the conversion of the expressed behavior in to actual is an issue for further analysis. The current research work has been undertaken by giving importance to the Impact of pre and post covid 19 on E-learning among students of higher education. However, the scope is not restricted to study of extended to primary and elementary educational institutions, schools and faculties perception, their challenges in accommodating new normal techniques in e-learning. Furthermore, future studies and research can be carried out to analyse determining factors of enhancing model and pedagogy of E-learning in all educational institutions and mostly our research has restricted to urban areas of India where larger share of students are aware of online teaching, but it can be extended to rural parts of India. Impact of covid 19 among employees of corporate sector, industrial organization, Government technical universities can be explored and comparative analysis through regression and correlation statistical tools can be used for much accurate linking relationship among various variables with path model demonstration. The research can be carried out consisting of larger samples and respondents by covering different states of India. Future research needs to focus more analysis on other influential and significant variables of E-learning model and interlink of this learning between different constructs like leadership, engagement, professional commitment, motivation, emotional intelligence and psychological contract of both students and faculties.

10. CONCLUSION-

The relevance of the present study lies on analysing influence of pandemic on E- learning in Indian higher education students. As a country, we all are experiencing an incredible phase of technological era and it's affecting each sector including education. The extent to which learning could be facilitated in this way of E-learning largely depends upon the faculties' capability to provide effective teaching so that students can visualise difficult task in most easy way. So, our study concludes that there is a huge difference before and after the pandemic on E- learning use by students yet this mode of learning gained much importance, popularity, and preference among educational institution because of its flexibility and diversity inclusion. The concern of challenges of E-learning cannot be ignored yet it needs much structural adjustments, improved revised policy interventions, issues of easy accessibility, cost considerations, development of methods for validation, assessments, and constructive feedback etc from the angle of mostly backward and rural parts of the country. Though various studies have been undertaken on the effect of the COVID-19 on education and learning still this study gives direction for more research need to be conducted covering various disciplines like pedagogy suitability as per requirement of learners, challenges, opportunities for primary & elementary education, network affordability, internet accessibility, disparity in income level and how it affects learning in covid 19 pandemic scenario. After the outbreak of pandemic it is an imperative need for all educational institutions to take radical shift from offline learning to virtual teaching and it has accepted by students with much awareness and competitive advantages .This pandemic has also affected psychological and confidence level of both students and teachers who are less familiar and poor experienced with technological tools to a great extent .So it is vital to focus on customization and investment on professional and technical grooming of teachers, especially on ICT and effective pedagogy, research in creation of user-friendly tools for building an conducive atmosphere for creative and interactive learning experience. This would assist and make robust our education sector to meet challenging expectations with coping ability to adopt such turbulence in future. The morale from the pandemic will act as a benchmark for learners and teachers that E-learning is an innovative approach to utilise information and communication techniques to collaborate in educational milieu. Educational institutions should be oriented to adopt numerous innovative online educational tools and techniques with blended learning approach. When normal classes will resume Student generation must be positively influenced with higher moral and encouraging spirit to continue with both online and face to face physical learning environment for more effective and enhanced teaching learning across the globe.

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