

Emerging Transformation of EdTech during COVID 19: An Analysis of Issues and Challenges of University Students in Chennai

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ABSTRACT

Education technology refers to innovative ways of managing classroom instruction. Technology-based educational tools include tablets, interactive outcrop screens, whiteboards, online fulfillment, and MOOCs. However, the current crisis of the COVID-19 pandemic forced the interactthe world to confide in it for online learning.To understand university students' perceptions, evaluate their experiences, recognize their barriers and challenges related to Ed Tech during the COVID-19 pandemic, and analyze factors that influence Ed-tech adoption and usage in higher education. Google Forms questionnaires were distributed to students of the university in Chennai. The researcher prepared the PercentageAnalysis, Mean and Standard DeviationAnalysis, and Chi-squareAnalysis; This study highlights the challenges and factors influencing the acceptance, and use of Ed Tech as a tool for teaching within higher education.

Keywords:COVID-19 pandemic, EdTech, Online, and offline learning, Technology, University online classes.

INTRODUCTION

Several factors have contributed to the rapid growth of online learning in India, including the availability of high-speed Internet, the emergence of smartphones, and the acceptance of digital payment methods. Educational institutions needed to adapt rapidly to the changing times in order to maintain the flow of education. As a result, online education has become increasingly popular. As faculty struggle to deal with the abrupt switching from on-campus to online learning, students are glued to their smartphones and computers.EdTech is the joint utilization of PC learning and information gathering for the online-based platform, programming, and instructive hypothesis and practice to make simple learning. EdTech startups have been developed as an alternative to educational delivery, with E-learning as the way forward; theseEdTech apps were adopted to ensure the consistency of the classes and also to build a powerful system of education(Tauson& Stannard, 2018).'Online training in India 2021' by KPMG estimated the market to grow to \$1.96 billion by 2021. For all the challenges that the Indian training framework is confronting, EdTech has an answer.

EdTech brings understudies a large group of choices for intelligent learning. Among the rundown of options remember the video coding and innovation, language learning courses, serious test arrangements, on-request guide revelation, and gamification of the learning venture. In 2018, the industry in India had raised \$700 million in funding. It is estimated that there are around 3,500 EdTech startups in India.

India is a nation where the educator to understudy proportion is consistently on the unfortunate side. Understudies frequently stand out enough to be noticed and have the freedom to ask and explain questions on an individual premise. EdTech offers an extensive response for all of this, and significantly more. Universities and colleges in India have succeeded in shifting from offline to online learning to deal with the Researchers' need to study the issues and challenges that stakeholders are currently facing in light of the pandemic situation. Considering the current pandemic situation in India, a transition of this kind has never been seen, and the challenges and issues faced by stakeholders need to be explored. Such a transition has never been seen in India. And To highlight the effect of the Transformation of Edtech during the COVID 19. This study aims to find out how students in Chennai universities and colleges perceive online teaching/learning (OT/L) during the present pandemic, the methods of OT/L being used by faculty, and the challenges being faced by the students.

REVIEW OF LITERATURE:

During the COVID-19 pandemic, the least advantaged have suffered the most, highlighting the unfair nature of educational inequality. To make restructuring effective, we must ensure that the issue of literacy is addressed in both the global and national COVID-19 response and recovery plans for learners of all ages. The general lifelong learning program and capacity should be strengthened to ensure learning continuity, improved access, and enlarged access. Distance and open learning opportunities should also be heavily considered. A major part of education's value is the digital way in terms of level and openness (Rizvi & Nabi, 2021).

Educating the next generation of faculty members will require a fundamental shift in the binaries of teaching and learning, faculty and students, and academic and non-academic. As a result, programs must adopt whole-systems approaches that support organizational growth (TashminKhamis et al 2021).

The COVID-19 pandemic's devastating effects on the countries where the university operates have compromised educational careers and outcomes of the current generation of learners.

Problems associated with online learning include downloading errors, installation matters, login complications, problems with audio and video modulations, time managing, boring and unengaging, lack of community, technical problems, difficulties in understanding instructional goals, etc. Observed the perspectives of senior university leaders and academics. Though this approach reveals good practices that can inform national or university-specific interventions, the identification of good practices should also consider the perceptions of students. A teacher's perception of the needs of their students drives the design of online learning activities that enable the students to acquire the equivalent knowledge and skills that they would have acquired in a face-to-

face environment(Ngoasong, 2021).

Highlighted that there is a continuous need to monitor technology evolution, set future goals, and encourage an enduring culture to bring the needed modified teaching and learning.

Any technology-enhanced education locality necessity is instructional, informational, rousing, and involving. The instructional modules should be designed to allow the use of exact teaching and learning tools in a quest to attain an improved teaching and erudition experience through assurance, critical thinking, and creativity(Pusca & Northwood, 2021).

The Covid-19 remarkably shifted the entire humanity and a new normal was maintained everywhere including the education sector. Colleges and universities of the world suddenly shut down to maintain social distancing and avoid spreading the virus. Online teaching was the only solution for the teaching fraternity and consequently online learning for students during the lockdown period, though it was a sudden shift from the traditional mode of teaching and learning(Sharma et al., 2020). Due to the global pandemic are forced institutions of higher learning have to implement emergency remote learning and change pedagogical approaches to enhance access and success for all students. Concludes that students' nature of special needs and disabilities are influential towards their choice of a mode of instruction.(Meda & Waghid, 2022).

Since it was a new experiment for both the student fraternity and teaching community its effectiveness must evaluate as well as proper feedback must be collected for further improvement since this mode may continue in the future too. while the findings of the existing revise support the effectiveness of screen cast technologies within the Information Systems curriculum, further research is needed to evaluate the ability of screen cast content delivery to ground-based Learning,. An expansion of this work could compare instructor-led shows to screen cast videos.

Such a study could resolve the freedom process that might be superior, in terms of effective knowledge transfer of Information Systems concepts(Vanitha & Alathur, 2021). To conclude, a more healthy study of screencast technology could scrutinize the design best practices essential for creating successful educational content(Augustine & Xavier, 2021).The purpose of the Online Mentoring system was the evaluation of the use of Professional Learning Communities with Information and Communication Technology based on Cloud Computing for Pre-Service Teachers. The tools used were Google Sites, Google Classroom, Google Calendar, Google Meet, Google Drive, Google Documents, and Google Forms and were selected based on the applications which were accessible, simple, and fast, especially the use of Google Meet on a mobile device(Karo & Petsangsri, 2021).

We have been able to see the evolution of Edtech in recent years. Initially conceived to provide a pleasant alternative to learning activities in terms of games and platforms dedicated to education, they have now evolved to include technologies to enhance learning and education as a whole (Lone, 2017). Edtech not only aims to make students better prepared for the rapidly digitalizing world around them, but it also helps develop creativity and personalize content in order to meet the needs of each student based on the stable evaluation. As a result of the COVID-19 pandemic, when educational

institutions were closed and a large amount of learning was conducted online, student satisfaction with online learning platforms in China was measured through applying the Technology Satisfaction Model(Jiang et al., 2021).

Teaching and learning online: Online education refers to electronic assisted learning in which teachers and students exchange information on the Internet Technology has made distance education easier (Mcbrien et al., 2021). Most of the terms (online learning, open learning, web-based learning, computer-mediated learning, blended learning, mobile learning, for instance) refer to a type of learning that can take place through a computer network anywhere on Earth at any time. with any rhythm, through any means”(A. Kumar et al., 2017). In the past two decades, organizations like the World Bank and UNESCO have promoted online learning to provide education to marginalized people: India has launched several online initiatives to improve access to education. By 2025, India will have the second biggest working-age populace on the planet, representing 25% of the world's work power(UNESCO-UNEVOC, n.d.). Distance instruction and e-learning models are being utilized to make training available and set up a labor force of 250 million individuals by 2030 (Wandhe, n.d.).Advanced Internet access, growth inside the wide variety of phone users, the recognition of virtual payment strategies, elevated authorities-stage participation have significantly contributed to the increase of online training in India(Hiremath & Albal, 2016). The latest e-studying systems help college students, educators, and companies and also are embraced in India by instructional institutions.

Online Learning with Engagement: Students and teachers, as well as scholars and students, could be very engaged in traditional lecture rooms. As well as asking questions of academics and fellow students on the spot, learners can also approach academics or other students for input or discussion(Zolkepli & Kamarulzaman, 2011). The online classes are recorded in video lectures, so E-learning is not always designed to deliver open-ended or crowd-sourced learning.These demanding situations and issues related to cutting-edge generation range from downloading mistakes, set up troubles, authentication troubles, audio, and video issues, and soon(K. S. Kumar & Mahendraprabu, 2021). Often online coaching is taken into consideration with the aid of college students to be stupid and unengaging. Also, the new getting to know the machine has led to prolonged work hours for the educators, encouraging increased strain(Karo & Petsangsri, 2021).Online mastering also faces significant problems related to personal care. It is often difficult to maintain bidirectional interactions between students and instructors. Students must have a sufficient level of understanding of what they read for the process of learning to be fully effective. Students cannot practice or successfully analyze a recorded lecture because it is all theoretical at times and cannot be augmented by exercises. Not all students and beginners have the same skills; they possess different levels of aptitude and degree of self-assurance. Online reading may not provide a comfortable experience for some, which can lead to confusion and frustration.Insufficient customization of getting to

know techniques will interrupt the teaching manner and create an imbalance(Piotrowski, 2015).

Learning and online teaching in Current trends: A number of platforms have been developed by the Indian government to facilitate online training. The Ministry of Human Resource Development (MHRD), the National Educational Research and Training Council (NCERT), and the Technical Training Branch each fund technical training programs. The University has also introduced initiatives such as ePGPathshala (e-content), SWAYAM (online guides for teachers), and NEAT (enhancing employability), this is wonderful news. Many other networks seek to increase collaboration between institutions and information accessibility. These networks serve as platforms for delivering course materials and instructions. There are several initiatives, including the National Technology Enhanced Learning Initiative (NPTEL), the National Information Network (NKN), and the National Academic Depository (NAD). Technology integration into the studying environment aims to improve learning experience and success (Ozerbas, M. A., & Erdogan, 2017).Classroom-based learning becomes more accessible with online learning. These Massive Open Online Courses (MOOCs) are public and accessible to all. Tens of thousands of students can participate at one time. Using online learning, classroom-based instruction becomes more accessible. These Massive Open Online Courses (MOOCs) can be taken simultaneously by tens of thousands of participants. Learn more about online learning platforms such as MOOCs, online universities, corporate eLearning, K12 education, and learning management systems like Teachable and Udemy. There is increasing popularity among iOS users for apps like Whatsapp and YouTube. Schools and colleges partner with online learning sites like Coursera to offer courses. A shortage of qualified teachers exists in rural India. The digital education that rural students receive is in the form of videos and documents(Baldominos & Quintana, 2019). Online training and distance learning can also be done on video conferencing platforms like Zoom, Google Meet, and Microsoft Teams, as well as webinars and live sessions(Dhawan, 2020). Along with establishing a reliable IT infrastructure and teaching faculty members OT/L, a university will also need high-speed Internet and instructional delivery mechanisms. Participation in these sessions or viewing pre-recorded lessons requires high-speed Internet connection and a computer or mobile device(Shukla, 2021).

Adaptability:-Initially, students find it difficult to adapt to a computer-based learning environment due to a sudden transition from conventional classroom learning to online learning. Most students feel alone while looking at their computer screens while learning online. They must embrace the change(King & Boyatt, 2015). Students who learn in the conventional classroom mentality cannot rely on online platforms. To create a classroom experience where all students can participate equally and feel like part of the group, we must adopt those teaching methods that give the students a vibrant feeling and make them feel like they are part of the class as well. Using tools such as Clear Slide, GoogleDocs, and Skype to impart education online is recommended to encourage collegial learning(Moser, 2007).

Quality assurance in Ed Tech: There are challenges at both ends of the educational technology spectrum when it comes to training; it isn't as simple as standing in front of a microphone at one end and connecting a computer on the other (An et al., 2021). The fine for a media course is also a problem. The established order of exceptional warranty frameworks and best standards for online getting to know evolved and supplied through HEIs in India in addition to Ed Tech knowledge of platforms is also critical (Sruthi & Mukherjee, 2020). Many students to know gamers provide numerous courses with various stages of certifications, curriculum, and criteria of assessment on equal topics. So the same old of publications can range across various e-learning system (Arrasyid et al., 2020).

Objectives of Research

1. To highlight the Transformation of Edtech during COVID 19.
2. To Understand the Perspective View of Edtech in India
3. To investigate the influence of Demographic factors towards Challenges faced by Students during Online Studies.
4. To examine the preferred methods of online learning among University Students.

Transformation of Edtech during Covid 19:

The Indian educational technology industry started in 2005, when digital penetration was less than five percent. The idea for affordable local tuition was born in Bangalore by a man living in the United States. It was at this point that TutorVista was born, later followed by Educomp. Through a few funding rounds and acquisitions, they laid the foundation of the Indian edtech industry (Cukurova et al., 2019). A new pioneer in space has emerged in India: BYJU's. This startup has become the world's top valued edtech startup since it was founded in 2011. Meanwhile, several new edtech startups popped up, and traditional coach companies began moving online as well. It was difficult at that time for the large target audience, especially those in tier three and four cities, as well as rural India, to access these platforms due to a lack of a nationwide data pipeline. By 2016, Reliance Jio came with edtech became more visible in the era of Jio's low data costs and widespread smartphone use. From 2016 to 2019, more startups entered the market, such as Vedantu, Unacademy, Simplilearn, WhiteHatJr, Toppr, Testbook, UpGrad, etc. India was home to a record 4,500 ed-tech startups in 2018. In addition to schools, colleges began moving towards online learning; MegaExams, Veative Labs, and Edunext were all part of the smart class wave. As well as schools, colleges are now moving towards online learning as well; MegaExams, Creative Labs, and Edunext are all part of the smart class wave.

Perspective View of Edtech in India:

By 2025, India will have 37 million or more paid edtech users, and 4,450 edtech startups have launched in India (although the numbers are lower than 1,150 due to shutdowns), and more are expected to follow. According to estimates, the edtech market will grow from \$2.8 billion (2020) to \$10.4 billion (2025). The lockdown months led to the growth of edtech adoption, which is expected to reach an addressable base of

37 million-plus users by 2025. While edtech was already growing, the Covid-19 event gave it additional momentum, bringing \$1.4 billion invested in the last nine months and 43 Indian Edtech startups acquired. Ed Tech Start-Ups in India With 65% of guardians saying their kids have used Byju's, the Indian startup is the most popular device in India. According to their parents, the remaining two participants, Unacademy and Vedantu, were only utilized by about 30% of the youngsters. Based on the review of online learning, approximately half of the Indian guardians did not feel satisfied with sending their children to class. By utilizing online stages freely, 48% of parents said their children were learning admirably. More than half of guardians said that their children are enrolled in web-based learning stages, up from 40% during the pandemic. The edtech market size is estimated to grow 3.7 times in India over the next five years, from \$2.8 Bn in 2020 to \$10.4 Bn in 2025 due to the pandemic driving edtech adoption (*The Future Of Edtech Market In India Report 2020*, n.d.). During the same period, digital spending is changing rapidly. The percentage of digital expenditure has quickly grown in the last two years (2018 and 2025). In 2018, education invested \$142 billion in digital technologies. In 2025, digital education technology is expected to reach \$342 billion (Sandeep Singh & Vaishnavi Dayalani, 2020).

PERSPECTIVE VIEW OF EDTECH IN INDIA

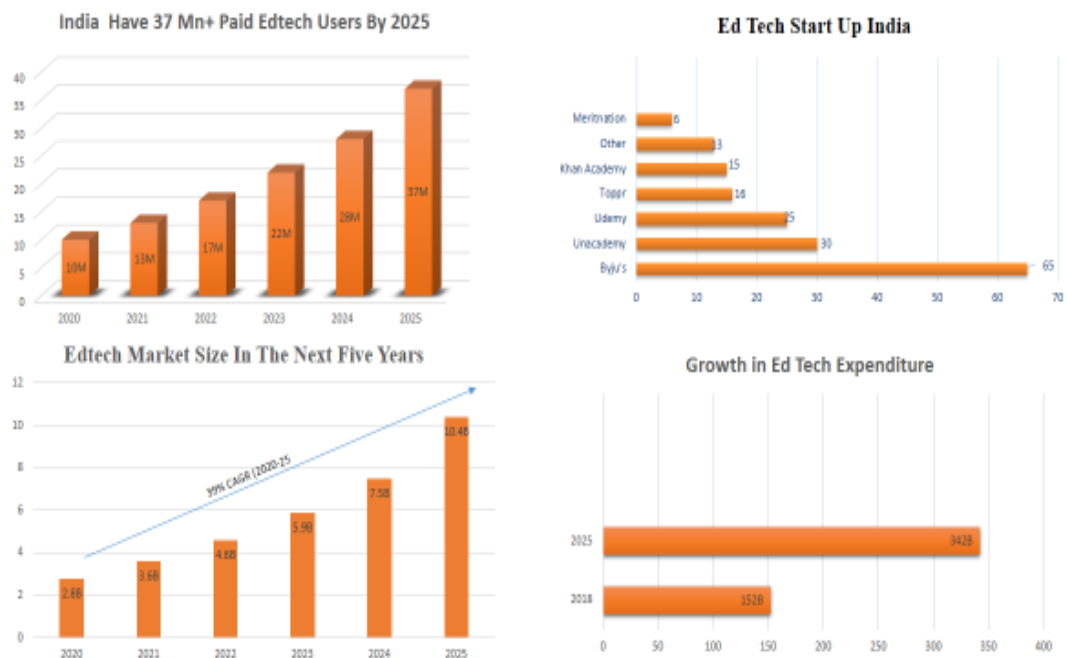


Figure 1: Source: The Future Of Edtech Market In India Report 2020 from inc42.com

Research Methodology

This study deals with the primary data and Secondary data. The primary data were collected from 120 respondents through a structured questionnaire from university students in Chennai city only. The convenient sampling were adopted in this current study. An Analysis of preferred methods of Online Learning and challenges faced by

university students. The data were analysed with statistical tools: Chi-SquareTest using IBM SPSS. The secondary data were collected from inc42.com.

HYPOTHESIS

H₁: There is significant relationship between the mean of age and gender, education towards challenges faced by students during online learning.

H₂: There is significant relationship between the mean of age, gender, education towards preferred methods of online learning.

PERSONAL FACTORS OF THE RESPONDENTS

The social and economic characteristics are composed of (a) Gender-wise classification, b) Age-wise classification, (c) Education of sample holders (d) Institution (e) Most effective digital device for E-Learning (f) Participation e-tools inE-Learning.

Table 1
Demographic factors of the respondents

Variables	Factors	Respondents	Percentage	Variables	Factors	Respondents	Percentage
Gender	Male	62	51.70	Institution	Private	61	50.83
	Female	58	48.33		Public	59	49.17
Age	Below 20	62	51.67	Most effective digital device for E-Learning	PC	45	37.5
	21-30	43	35.83		Laptop	26	21.67
	Above 30	15	12.5		Smartphone/i Pad	49	40.83
Education	UG	73	60.83	Participation e-tools in E-Learning	Google Class	60	50
	PG	47	39.17		Zoom Class	42	35
	Private	61	50.83		Microsoft Tools	18	15
	Public	59	49.17				

Table 1 above highlighted the majority of the respondent's profiles.

The Majority of The Respondents are male (51.70 %), Belonging To The Age Group Up To "Below 20years" (51.67%), Having A Education Level of Post Graduation (73%), Studying In Private Education institutes (50.83%). The Majority of the Respondents (40.83%) Say That The Most Effective Digital Device For E-Learning Is Smartphone Or Ipad. Also, majority of the Respondents (50%) Participate In E-Tools Provided In Google Meet.

CALCULATION OF CHI-SQUARETEST

H₀: There is no relationship between Gender factors and challenges faced by students during online studies. The formula used for the calculation of chi-square value is as follows:

The Chi -Square analysis of variance was conducted to test the differences between

constructs on the demographic variables collected in the study.

$$\text{Chi-square value} = \frac{\sum \frac{E(O-E)^2}{E}}$$

Where, O =ObservedFrequency E = ExpectedFrequency

Table 2

S.No	Gender	Unsuitable home environment for attending onlineclasses					Total
		SA	A	A NOR DA	DA	SDA	
1.	Male	39	21	15	04	0	62
2.	Female	22	25	13	02	0	58
Total		61	25	28	06	0	120

Sources: Primary Data

(SA- Strongly Agree, S- Agree, S NOR DA- Agree nor Disagree, DA- Disagree, SDA- Strongly Disagree).

Table 3

Sl No	Nature of Variables	Hypothesis	Calculated Value	Table Value	Degrees of Freedom	Acceptance of Null Hypothesis
1.	Gender factors and challenges faced by students during online studies.	H ₀₁	16.4	9.488	4	Rejected

Sources: Primary Data

Table3 makes it clear that there is one hypothesis set,namely,H₀₁isaccepted, because the calculated values of chi-square are less than the table value at a 5%level of significance. Hence, there is a significant relationship between gender and an Unsuitable home environment for attending online classes.

H₀: There is no relationship between Gender factors and live lecture delivery by your faculty.

Table 4

S.No	Gender	Live lecture delivery by your faculty					Total
		SA	A	A NOR DA	DA	SDA	
1.	Male	39	21	15	04	0	62
2.	Female	22	25	13	02	0	58
Total		52	45	20	03	0	120

Sources: Primary Data

(SA- Strongly Agree, S- Agree, S NOR DA- Agree nor Disagree, DA- Disagree, SDA- Strongly Disagree)

Table 5

Sl No	Nature of Variables	Hypothesis	Calculated Value	Table Value	Degrees of Freedom	Acceptance of Null Hypothesis
1	Gender factors and live lecture delivery by your faculty.	H ₀ 1	8.58	9.488	4	Accepted

Sources: Primary Data

Table -5 Makes it Clear that there is one hypothesis set, namely, H₀1 is a accepted, because the calculated value of chi-square are less than the table value at 5% level of significance. Hence there is a significant relationship between gender and your Faculty 's live lecture delivery.

Ho: There is no relationship between Age Factor and Unsuitable home environment for attending online classes

Table 6

S.No	Age Factor	Unsuitable home environment for attending online classes					Total
		SA	A	A NOR DA	DA	SDA	
1.	Below 20	34	11	14	03	0	62
2.	21-30	20	09	12	02	0	43
3.	Above 30	07	05	02	01	0	15
Total		61	25	28	06	0	120

Sources: Primary Data

(SA- Strongly Agree, S- Agree, S NOR DA- Agree nor Disagree, DA- Disagree, SDA- Strongly Disagree)

Table 7

Sl No	Nature of Variables	Hypothesis	Calculated Value	Table Value	Degrees of Freedom	Acceptance of Null Hypothesis
1	Age Factor and Unsuitable home environment for attending online classes	H ₀₁	3.133	15.507	8	Accepted

Sources: Primary Data

Table-7 makes it Clear that here is one hypothesis, namely, H₀₁ is accepted, because the calculated values of chi-square are less than the table value at a 5% level of significance. Hence, there is a significant relationship between age factors and Unsuitable home environment for attending online classes.

Discussion:

As a result of the divide between those with and without access to technology, those who can adapt to them, and most importantly, those who can afford them, these benefits will only accrue to certain groups. According to the Key Indicators of Household Social Consumption on Education in India report for the 2017-2018 school year, only 23.8% of Indian households have access to the Internet. A smaller percentage of rural households (14.9%) have internet access compared with 42% of urban households. Any educational unit in the world will not be able to support changing resistance. Institutions will be rated on how quickly they adapt to change and how well they maintain quality in such a short period. The educational units' legitimacy is in risk, and they are being investigated. Amid this crisis, institutions' ability to adapt is demonstrated by how successfully they act and maintain their educational standards.

CONCLUSION

EdTech makes powerful teachers make them accessible to an enormous populace of understudies. The requirement for an actual space where understudies and educators can gather for homeroom meetings is not generally required. On-request video web-based makes it believable to courses at whenever, anyplace, and through any medium. These large numbers of strong factors alongside numerous others fuel the development of the EdTech transformation in India. The research discloses that the probability of replacing traditional teaching with modern online e-learning tools has been improved and this provides a huge promotion for the EdTech startups in India. Thus, it will help to increase a deliberate plan for the successful performance of e-learning and view technology as an optimistic step towards development and change. This study highlights the challenges and students' favored technique of online learning.

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