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Study on adaptability and effectiveness of new media tools in the field of education in India during and post-COVID-19 Era

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Abstract:
Till 2019 December the world did not quite understand the meaning of virtual and physical existence or online and offline existence. But by March 2020, the entire world came to a standstill. COVID-19 the dreaded pandemic has arrived causing much havoc in our lives. "Lockdown" was the new word in everyone's dictionary and the pandemic forced a self-imposed house arrest for all. Humans are said to be the most innovative of all species in the world, and though there was an initial setback due to the lockdown, it was quick to bounce back on its feet, thanks to the innumerable technological developments. New media tools like video conferencing apps (Zoom, Google Meet, Microsoft Teams, etc), online audio-video content channels (YouTube), instant messaging apps (WhatsApp, etc), educational apps (Byjus, Unacademy, e-pathshala, etc) came to everyone's rescue. India was no different from the rest of the world. However, over here in India, there were lots of adaptability, usability, and availability issues of these advanced new media tools among people.

Keywords: *Online education, India, New media tools, YouTube, WhatsApp, Educational apps, Internet, COVID-19, pandemic, Educational apps, Video conferencing apps*

1. Introduction

Media is the plural form of a word borrowed from Latin which means a channel of communication. New media can be explained as a channel of communication that uses digital systems to communicate. With the advent of technology, the birth of new media happened. First, there was a shift from handwritten documents to printed ones, then broadcasting started, and then we entered the phase of the digital revolution. The way the traditional media delivery system worked evolved and simultaneously new communication technologies were established, the Internet being at the center of it.

The Internet revolutionized the way communication happened. Online communication has become the fastest & and most effective mode to communicate. No sector is left untouched by online communication. In today's time email, online chat, websites, blogs, podcasts, and social media such as Facebook, Instagram, Twitter, YouTube, Pinterest, WhatsApp, and Snapchat are referred to as modern-day New Media tools for communication.

2. Research Objective

The main objectives of the research are:

1. To study the new media tools that were most effective during the COVID-19 pandemic
2. To study the pros and cons of online learning during the COVID-19 pandemic
3. To study the effectiveness of new media tools, post the COVID-19 pandemic

3. Online Education in India

Online education in India started in the year 2004-05. Government organizations such as the Ministry of Human Resource Development (MHRD) and Indira Gandhi National Open University (IGNOU) introduced two-way video communication systems for the first time with a view to ease the imparting of distance education. However, the efforts did not meet the expectations due to inadequate technological

advancements. In 2008, the education sector witnessed the entry of some private players in the domain of e-learning. The technology of smart classrooms began to be used in some premier educational institutions. But even over there, people did not show much inclination and interest toward the concept of e-learning. Some key reasons were the difficulty and resistance in replacing traditional face-to-face learning with online education, and technological snags such as electricity, and internet speed, to mention a few. In 2008, 2G spectrum was allocated followed by 3G a year after. WiMax also was auctioned in 2010. Then in 2011 Mobile Number Portability services were offered. In 2012, Bharti Airtel became the first operator to offer dongle-based 4G services, and later in 2014, mobile 4G services were offered by the operator (Economic Times, 2020). Thus, as the technological snags were overcome by the government, it was only in 2015 that the country saw the emergence of various EdTech platforms like Byjus, Unacademy, Vedantu, etc and thus that year proved to be a game changer for the EdTech Industry. With this, many people understood that online education could be the biggest innovation in the domain of education. In 2018, the University Grants Commission (UGC) began supporting online education models (Bhartiya, 2021). But in 2019, the world was suddenly paralyzed by the unexpected COVID-19 pandemic. Everyone was forced to carry on their work online only. The education sector was no different. As schools were asked to shut down for an indefinite period, online imparting of education was the only way forward. However, new digital learning platforms like Zoom, Google Classroom, Canvas, and Blackboard came to the rescue of teachers and students alike, as these platforms facilitated online classes and helped in creating and sharing learning material. For many schools with students from lower income groups, WhatsApp was used to share the study material and for conducting assessments too. Thus, the pandemic forced the online education sector to finally arrive in India. Though private schools in urban areas quickly reinforced their digital capacities and prepared themselves to conduct online classes, 78% of primary and secondary schools in India run by government aid, were not prepared. Although provisions were made in government schools to conduct classes online, existing fault lines—"between rural and urban, male and female, rich and poor"—were ignored.

4. Government e-learning initiatives

In the early days, television was used as a medium by the government of India, to educate farmers on how to get better-yielding crops. Programs like Krishi Darshan curated and telecasted by GOI was very popular. In urban areas, schools were introduced to the concept of smart learning, and traditional classrooms started co-existing with smart classrooms. Both National and International companies have been developing technology to support better learning processes through digital media. The predominant players in this segment are (Kalyan & Lakshmikantha, 2016)

Sr.no.	Product Brand	Company
1	Smartclass	Educomp Solutions
2	Digiclass	Pearson Education
3	Digischool	HCL Learning
4	Teach Next	Next Education
5	SmartLearnClass	Extra M arks Education
6	Nguru	NIIT
7	Classteacher	Shaper Technologies
8	Class Edge	Tata Interactive Solutions

As of 2014, these digital education companies have penetrated almost 37% of the private schools of 80,000 schools. With the advancement of technology, the evolution of e-learning, and due to its success in the field of agriculture, the Ministry of Education started working on the framework of learning by all, with all, and for all. Several projects were introduced under this framework. The government started using TV broadcasts to impart classroom education in remote villages. Swayam Prabha TV was introduced on 7th July 2017, which telecasted 32 educational program-based channels with the mission of "One class – one channel". The government tied up with TATA Sky & Airtel to telecast the programs. During the pandemic, not only the government but the world, in general, understood the importance of

virtual learning. When COVID-19 hit the world in March 2019, e-learning or virtual learning was the only way out. In April 2020, VidyaDaan was launched with the idea of seeking contributions in the form of digital content for facilitating e-learning. Assam, Goa, Kerala, Odisha, UP, Punjab, Maharashtra, Gujrat, Telangana, and Chandigarh along with the CBSE and NCERT are working efficiently on VidyaDaan to source content. In the same month, the Ministry of Human Resource Development (MHRD) presented the Alternative Academic Calendar for Students (AAC) guidelines on continuing formal school education in online mode in the 2020-21 academic year. On 17th May 2020 PM E-Vidhya program was announced with the objective of unifying digital and online education with the education program for better reach and access to E-learning. It targeted around 25 crore school students across the country(www.timesofindia.indiatimes.com, 2022).

5. Internet and Smartphone penetration in India

As per Nielsen report (Jha, 2022), India has 646 million active internet users aged two years and above as of December 2021. The report also suggests that rural India has a 20% higher presence of internet users than urban parts of the country. The study was based on surveys carried out by Nielsen firm across states from September 2021 to December 2021 covering 110,000 household members across 27,900 households. Their findings state that,

- active internet users aged 12 years and above stand at 592 million.
- Compared with 2019, the active internet user base for 12 years and above has shown growth of 37%.
- Rural users' growth of 45% continues to outshine urban users' growth of 28% over 2019.
- In the past two years, female Internet users have grown by 61% as compared to male users who grew by 24%. One in every three Indians is actively using the internet.
- Almost 90% access the internet daily.
- Mobile phones have remained the key device for all internet usage across sectors.
- 502.2 million people in India had smartphones as of December 2019
- The number of smartphone users is expected to be 859 million and 504 million, respectively by 2022. (Khanapurkar, Bhorkar, Dandare, & Kathole, 2020)

6. The impact of the pandemic on the usability of new media tools in education

The pandemic changed the dynamic of imparting education forever. Everyone was unprepared. Below we will be discussing some of the most used and popular new media tools in the field of education and understand their usability and impact.

6.1 YouTube

Long before ed-tech platforms became the mainstay, videos on YouTube were students' one-stop destination for voluntary and supplementary learning. During the pandemic the role of supplementing learning increased by many folds as many State Education Boards started using it as part of their pedagogy. Many schools that did not have learning management started using it as a tool to conduct live classroom sessions. Many teachers started their own YouTube channel to facilitate better learning (Srinivasan, 2020). For a better demonstration of the concept, teachers started sharing concept-related YouTube links among students. It was found that there were 337 million YouTube users in India during 2020 (Degenhard, 2023), which increased to approximately 497 million by the end of the pandemic in the year 2022. Thus, we can conveniently assume that the lockdown forced people to shift to YouTube for a better understanding of concepts and entertainment. In research conducted by Mohammed Arshad Khan and his team (Khan, et al., 2021) 17.4% of students were using YouTube for learning which was significantly higher as compared to previous years.

6.2 WhatsApp

There are many instant messaging apps available, but the most popular of them all is WhatsApp. When the first lockdown was declared in March 2020 the number of WhatsApp users in India was approximately 400.7 million users which increased to approximately 581.93 million towards the end of the pandemic in 2022 (J.Degenhard, 2023). It was found that approximately 23.38% (Khan, et al., 2021)

of students and teachers were using WhatsApp for studying purposes because, it allowed the formation of class groups up to 1000 participants, which means at a single click same message/study material/video could be shared with max 1000 people simultaneously. WhatsApp also allowed multiple groups sharing up to 5 groups at any given time simultaneously. WhatsApp was always used by people for messaging purposes pre-pandemic but during the pandemic, it emerged as the cheapest app to many for continuing their education.

6.3 Educational Apps

In 1994, India's EdTech journey began in India with the launch of Educomp. Around 2010, EdTech start-ups started entering the market to create a parallel educational platform for students. Byju's learning app became one of the most valued EdTech companies in the year 2019 (Dhawan, 2020). This sector gained a major boost during the pandemic as formal school/college/university education was put on hold. Education apps saw a noticeable boost in usage over the pandemic, rising from 185 million users in 2019 to 270 million in 2020 and then to 350 million by the end of 2022 (Shrestha, 2023). Growth has continued in 2021 and 2022 (WYLIE, 2023). There are various reasons why educational apps are gaining popularity globally and in India. Some of the reasons being (Tyagi, 2020)

- Enhanced interaction – As most of the educational apps present the study material in animation format, the student can get a clearer understanding of the concept. Also, these apps encourage the students to ask questions and clear their doubts during the live sessions.
- Better parent-teacher communication- Parents are encouraged to discuss the performance, and mental and physical well-being of their child with the help of the apps.
- Availability of online resources – Relevant online resources are assembled and provided to the student in a single platform.
- Provides learning with entertainment – As the study material is provided in a very attractive and animated format, the process of learning becomes very wholesome and entertaining.
- Promotes remote learning – Educational apps encourage people from any nook and corner of the country to enhance their knowledge, as the apps are available on their mobile phones.
- Offers personalization – These apps with the help of AI technology are now able to understand the exact requirement of the student, and study material and assessment is provided as per individual need.
- Portability – These apps encourage learning anywhere and anytime concept, which has helped working professional knowledge seekers a lot. Thus, the compulsion of attending classes at fixed hours in a fixed location is not a barrier for people who want to pursue career and education simultaneously.

Some of the most popular educational apps that gained significant popularity during the pandemic are Toppr, ePhathashala and Extramarks (Basuroy, 2022).

Apps like Byjus BYJU'S, India's earliest and most valuable EdTech start-up, have added 7.5 million new users to its website due to the pandemic. The amount of time spent on the app rose from 70 minutes before the lockdown to 91 minutes during it. Vedantu and Unacademcy also made significant progress due to the pandemic (Sahi, 2021).

6.4 Video conferencing apps

Video conferencing is a technology, which became a lifesaver for all during the pandemic. Be it for business purposes, education, or interaction with family or friends, video conferencing apps came to everyone's rescue. The main benefits of these apps are:

- Virtual but face-to-face interaction
- Reaching to the remotest of places
- It saves time and space for both the employee and the employer

During the pandemic, video conferencing apps like Zoom, Google Meet, and Microsoft Teams became the most preferred video conferencing apps for facilitating education. As per research conducted by Vysakh Chingath and team on the usage and preference of video conferencing apps for education during the pandemic, it was found that Google Meet was the most preferred app among schools at 96.60%, followed by Zoom at 95.50%, Webex at 69.30% and Google Classroom at 44.30% (C, B.K, & Babu, 2021). As Google Meet was accessible to people using Gmail email account, Zoom became the most installed app, with 131 million installs in 2020 (Indian Express, 2020)which increased to 300 million installs in 2022 (Zippa, 2022). Hence from the above information following data emerges.

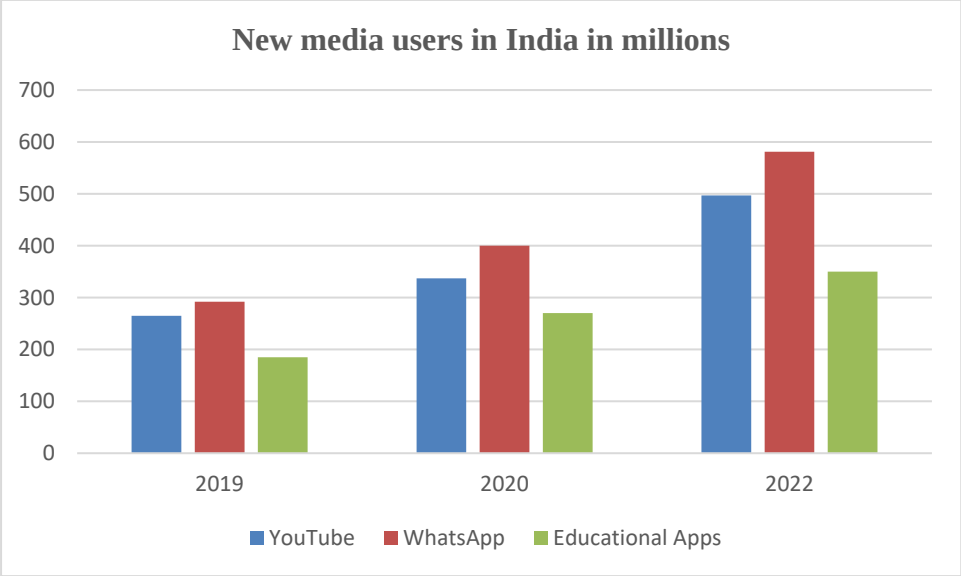

Figure 1: New media users in India in millions

From Figure 1 it can be clearly inferred that new media tools had a significant acceptability during the pandemic as compared to the pre-pandemic era.

Although new media significantly helped the teachers and students during the pandemic but there were few hiccups and concerns too.

A 2020 study by the Ministry of Human Resources (MHRD) found that the learning of about 240 million children who were enrolled in school got severely affected amid COVID-19. (Padhi & Lalhriatchiani, n.d.) In the case of disabled or specially-abled students, the road ahead was much tougher. As per a report by the State Disability Information and Resource Centre, Bhuvaneshwar (SWABHIMAN, 2020) it was found that almost 43 lakh disabled students across states dropped out due to the inability to cope with online education.

However, the forced online classes, during the pandemic, took its toll on school-going kids, as per the statistics – 78% of students found learning at home burdensome, at least 38% of them faced difficulties in learning, and 24% had no digital devices at home (Pandya, 2022). These problems led to a decrease in student enrolment in schools. As per National Achievement Survey (NAS), an estimated 286+ million children up to class 6, were out of school in the country and the performance of those who were receiving online education decreased significantly. Also, the sudden load of online classes had a toll on teachers too. In a survey conducted by Surbhi Dayal (Assistant Professor – Indian Institute of Management, Indore) in the year 2020-21, to study, how effectively have teachers adapted to the new virtual system in private urban schools (Dayal, 2023), the researcher found that, while 93.82% of respondents were involved in online teaching during the pandemic, only 16% had previously taught online. The survey indicated that teachers in higher education and at coaching centers had better access to laptops

and desktop computers as they were being provided by the institutions, whereas teachers in elementary and secondary schools had to arrange their own smart devices to conduct online classes. The teachers struggled with the stability of the internet connection and proper Information and Communication Technology (ICT) training to deliver the online classes effectively. The researcher also found that 85.65% of respondents stated that the quality of education had been significantly compromised in the online mode and almost half (48.7%) of the participants expressed their disapproval of online work and would not prefer to teach online. The working hours due to the pre-preparation of the PPTs and PDFs for conducting online classes increased significantly which was not compensated duly by the educational institutions. Some teachers were forced to bear the additional cost of electricity and internet connection.

In the case of rural government-aided schools, only 8% of the rural students were able to receive education through online mediums (Bhadra, 2022).

Hence, although new media tools served as a big helping hand to the students and teachers, but they fell short in catering to the entire student community in India and the sudden forceful imposition of online classes hampered the education system profoundly.

7. Effectiveness of new media tools post-pandemic

Although the pandemic forced the students, teachers, parents, and school management to go online, it was a boon in disguise because finally, everyone realized that education can be imparted online. It has its share of benefits which nobody can deny now. As per data shared by the Internet and Mobile Association of India in April 2023 (IAMAI, 2023)

- 56% of new internet users in India will be from rural India till 2025
- Internet access through devices like Tablet, Smart TV, etc has increased to 13% in 2022
- Penetration of Online learning is higher; 9% in urban areas as compared to rural which is at 3%
- Online Learning has helped bridge the Gender gap in supplementary education with an almost equal representation of Males and Females, especially in Rural. At present of the total students taking up online classes, 57% are female and 43% are male. In urban areas 58% are females and 42% are males. In rural areas 54% are female and 46% are male.
- New media tool like YouTube has helped education reach students in the remotest areas of the country. India has more than 497 million YouTube users of which 85% of video viewers in India say YouTube helps in their learning and skill improvement. Since 2019, search interest in online education has increased by 50%, and search interest in e-learning has risen by 75%.
- WhatsApp groups formed by teachers and students during the pandemic continue to facilitate the sharing of information and study materials.
- Post COVID-19 in-person teaching has taken center stage again, making survival tougher for companies like Byju's, Vedantu, and Unacademy to name a few. India is a country that values its traditions and systems, hence, post-COVID-19 it was quick to realize that though online learning facilitated continuity of learning during the pandemic, due to its shortcomings, in-person teaching gave more learning clarity and at any given point in time Indians will prefer offline learning more. Thus, Ed tech companies were quick to realize that a hybrid model of education is the way forward. So, these companies are quickly opening offline educational centers along with online coaching.
- As for the use of video conferencing apps that boomed during the pandemic also faced a slowdown post-COVID-19.

However, we can safely conclude that COVID-19 in a short time eradicated the prejudices related to online learning in people's minds.

8. Conclusion

"Necessity is the mother of invention" is a common proverb in English. Seeing the way new media tools came to the rescue of students, teachers, parents, and school management during the pandemic, we can

rephrase the proverb and say "Necessity is the mother of finding new ways in existing systems." Though the effectiveness of new media tools in the field of education cannot be denied a lot of focus should be placed on providing the rural and urban population of India with cheap, uninterrupted internet facilities, more awareness of the usability and effectiveness among the population and training platforms on how to use online learning to its maximum capacity.

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