Ms. Apurva Goyal and Mr. Puneet Kumar (June 2023). ADVENT OF TECHNOLOGY AND ITS EFFECT ON CHANGING TEACHING SCENARIO
***International Journal of Economic Perspectives*,*17*(06)** 82-93
Retrieved from https://ijeponline.com/index.php/journal

ADVENT OF TECHNOLOGY AND ITS EFFECT ON CHANGING TEACHING SCENARIO

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Abstract:
With the Covid-19 pandemic affecting people and overall economic activities around the world, technology is now more significant than ever and is also becoming a new reality for learning and teaching processes. Technology has played a major role in bringing people back from the lockdown scenarios disrupting academics.Distances are no longer an impediment to education, and it is now available to students on a daily basis. Today, more than ever, educational institutions are engaging virtually with teachers and students with use of Information and Communication technologies (ICTs). It is now being referred to as educational technology (EduTech). **The major role that education technology plays is improving communication among peers, which facilitates the transfer of skills and knowledge to students and also improves the quality of study time.**
Apart from this, E-learning tools and numerous applications such as Microsoft teams, Google meet, helps students to connect virtually and access information required from anywhere anytime. Even a number of government efforts at the elementary school level, such as the construction of computer laboratories, are sharpening the focus on educational technology. Thus, education technology is the practise of using contemporary technologies to enhance educational quality. The research is a fictitious attempt to look at the roles that contemporary technology plays in education now as opposed to before the Covid-19 protest and its effect on the changing teaching scenario.
Keywords: Education technology (EduTech), Information and Communication technologies (ICTs), E-learning, Covid-19 pandemic

1. Introduction

It is common for people to describe the 21st century as technological. Technology has become a crucial aspect of modern life and is considered both as a teaching tool as well as a learning tool. It is regarded as the basis for growth. A technology-deficient economy cannot grow in the current climate. Every imaginable sector of the economy, including education, is impacted by technology.The use of modern tools and equipment improves student learning and involvement. Students that take advantage of technology are more engaged, which leads in improved retention of knowledge. Technology is crucial to students because of the continuous worldwide advancement of new technologies. Technology offers significant educational prospects. Technology also allows for

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Submitted: 27April 2023, Revised: 09 May2023, Accepted: 18 May 2023, Published: June 2023

experiential learning, which may be integrated into all academic topics taught in schools, including arithmetic, language, science, and the social sciences. It allows students to collaborate with their peers in order to gain from one another. When these elements work together, motivation and achievement among pupils may improve. They discover it to be significantly more interactive and filled with fascinating places when technology is used.

The introduction of technology innovations across industries tends to have the greatest impact on the education sector. Since the beginning of learning and development, technology has actually played a significant role at the cuttingedge of education, from the carving of symbols and figures on cave walls to Gurukul education, where students were taught how to exploit current technology, through the usage of artificial intelligence (AI) and virtual reality (VR).

Knowledge transfer becomes very practical, and efficient. This shows that contemporary technology helps our minds work more swiftly now in many spheres of life, including learning. The reliance on such a technological advancement that merely makes life easier, pleasant journey is entirely inevitable these days even in schools, universities and colleges.Massive Open Online Courses (MOOCs) make courses accessible for free. There are countless podcasts, movies, and blog entries available that cover every conceivable subject from educational institutions as well as other sources. The availability of experiential learning, where students can advance beyond theory without having to wait until graduation, is made easier for educational institutions by all these alternatives and a large range of discipline-specific technologies.

Also, students have deeper access to their own peers, another crucial learning resource. With conversation & collaboration tools, technology has a noteworthy beneficial effect on learning since it tries to connect students who would not have thought or had the opportunity to engage or help one another offline.

1.1 Advent of Indian Education Technology (EduTech) post Covid-19

The use of technology has changed up to a large extent post the Coivd-19 pandemic as India has grown exponentially and the old traditional methods of teaching and learning were replaced by Edutech, which on the other hand, offers personalised lessons and gives pupils a wide range of interactive learning alternatives from the teachers', parents', and students' sides.

However it is always not possible for everyone to have access to digital leaning or EduTech platforms due to family and financial constraints. Despite the fact that EduTech's virtual learning possibilities are growing, millions of families are still unable to afford them for a various reasons.

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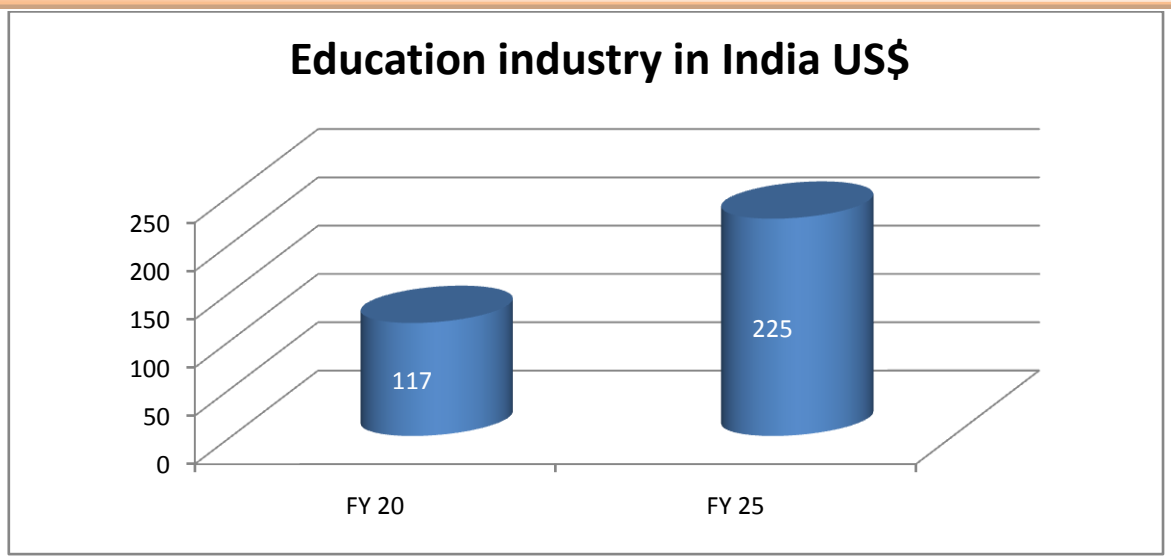


Source: India Brand Equity Foundation, https://www.ibef.org/industry/education-sector-india.

From the above graph we can conclude that India's education market is projected to be worth US$ 225 billion by FY25, up from an approximate US$ 117 billion in FY20.

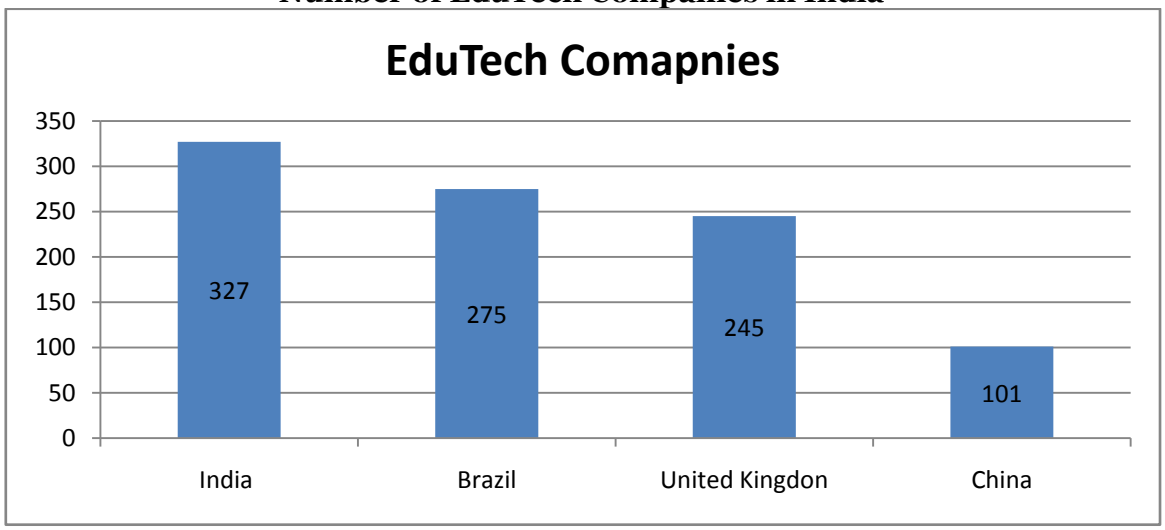
The Indian learning technology market is anticipated to grow from US$ 700–800 million in 2021 to US$ 30 billion by 2031. India has surpassed the US to become the second-largest market for e-learning, according to KPMG.

The market for online education in India is expected to grow by US$ 2.28 billion between 2021 and 2025, at a compound annual growth rate (CAGR) of over 20%. In India, the overall market is expected to grow by 19.02% in 2021.

1.2. EduTech Companies in India

India is home to large number of EdTech companies that creates various online learning platforms as compared to other countries.

Number of EduTech Companies in India



Source: International Trade Administration, Market Intelligence

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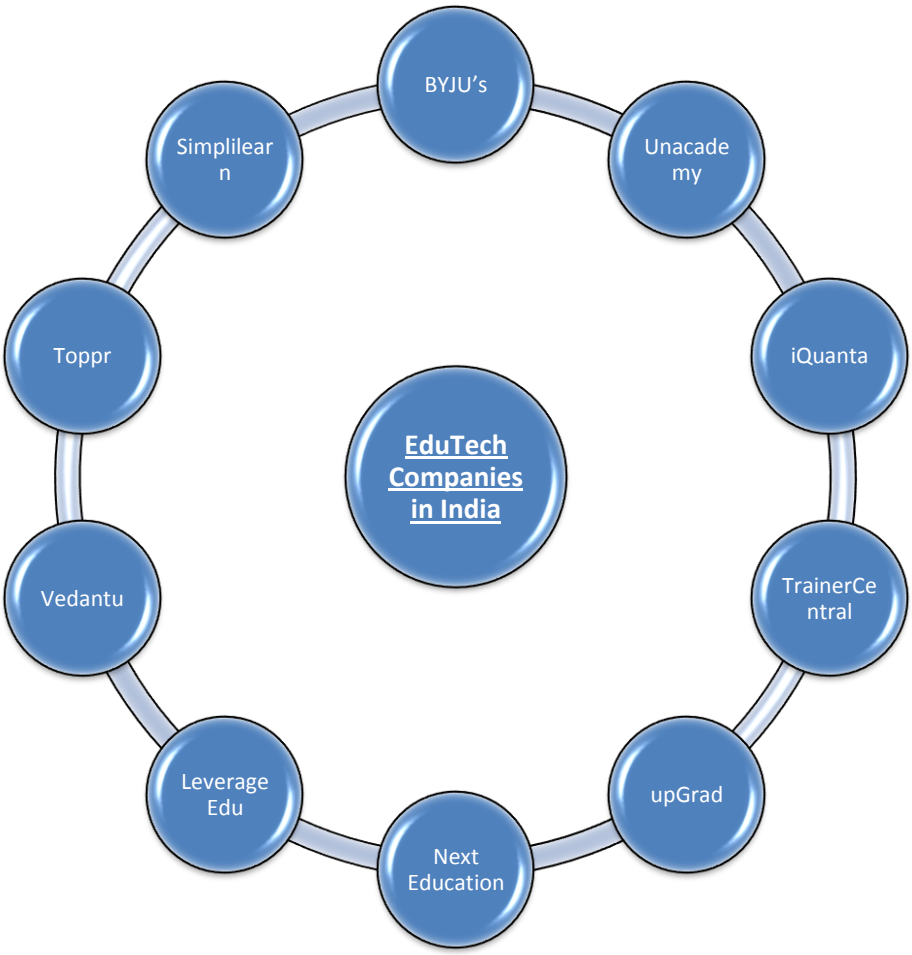
It is clearly visible that EduTech start-ups are now functioning in the nation as a result of the rising demand for tech-enabled learning solutions. Also India ranks second in the world with BYJU leading the group in terms of venture capital raised. Massive Online Open Courses (MOOCs) are provided through Study Web of Active Learning for Young Aspiring Minds (SWAYAM) platform, a recently developed Indian platform, to assist individual instructors and higher education institutions in meeting the online demand.

Online education, assessment, smart courses, and offline education are the four areas that make up India's EduTech business. Enterprises in the United States are urged to collaborate with Indian enterprises and/or institutions to provide online education goods and technology in examination preparation, restructuring, online certification, language, and deep learning. U.S. businesses may look at potential to offer remedies in the fields of biometrics, cloud computing, 3D printing, personalised robotics, augmented and virtual reality to boost student engagement, and artificial intelligence for proctoring. For smart courses, businesses may also offer whiteboards, learning management systems, and coding expertise. For offline education, they can also provide tablets, smart phones, and SD cards.

1.2.1 Major EduTech Companies in India



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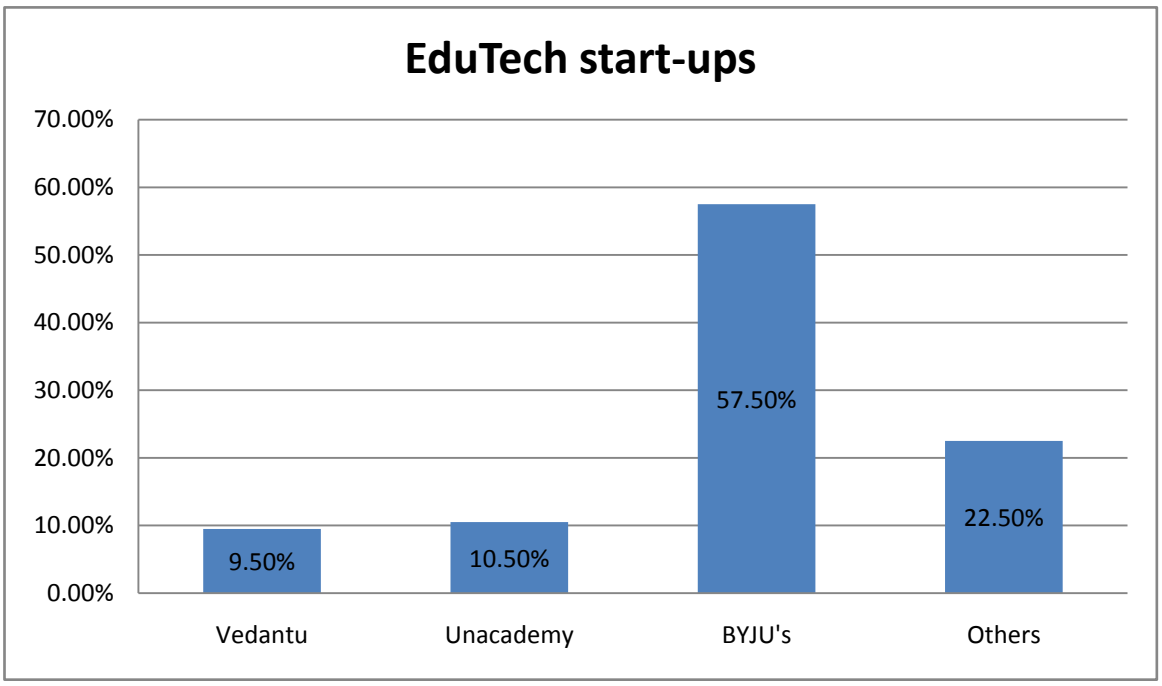
In 2020, what percentage of educational technology start-ups in India will be funded?



Source: Statista 2023,

In 2020, Indian EdTech businesses raised around 1.43 billion dollars in financing. Over 57 percent of the entire cash was raised by BYJU'S in India. The multinational Indian company BYJU'S, which specialises in educational technology, was established in 2011 and is based in Bangalore.

2. Traditional Teaching v/s Virtual Teaching

This is a most debatable topic as everyone of us have different perspectives regarding this. The majority of Gen X instructors believe that blackboards are considerably simpler and that complex technology is difficult to grasp. They think that emotional bonding in the classroom promotes moral behaviour. Despite being used to technology, instructors of millennials are sometimes too busy to keep up with new developments.Reliability, device compatibility, and internet concerns are highlighted by Butler and Sellbom (2002) and Chizmar & Williams (2001). Since technology is developing at an exponentially quicker rate, a device purchased today could not exist in three months or become far less useful. It will cost money, effort, and skill to upgrade those.

A typical student devote fewer than 5,000 hours per year reading, but more than 10,000 hours per year enjoying video & internet games, according to Marc Prensky [Educational Author 2001]. He said that the children of today are not the ones for whom our old educational system was intended.

Other academics have acknowledged that technology education methods are more necessary than conventional education.In 2007, the National School Boards Association identified technology

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competency as a critical 21st-century learning tool. If we educate today's pupils what we learned yesterday's, we deprive them of future, as John Dewey famously said (Agnello, White, & Fryer, 2006). All the more this can be concluded by evaluating various pros and cons of digital education and its effect on teaching scenarios.

3. Government Initiatives undertaken for developing Indian Education Sector

- The Indian education industry is open to 100% FDI under the automatic method.
- The National Accreditation Regulatory Authority Bill for Higher Education and the Foreign Educational Institutions Bill are two government measures that aim to liberalise the industry.
- The Department of School Education and the Ministry of Education were honoured by UNESCO for their use of information and communication technology (ICT) during the COVID-19 epidemic as a part of a broad project known as PM eVIDYA.
- In July 2022, Prime Minister Mr. Narendra Modi opened the three-day Akhil Bharatiya Shiksha Samagam in Varanasi to have discussions with stakeholders about how to advance the implementation of the National Education Policy 2020 throughout the nation.
- The funding for the Samagra Shiksha Scheme has grown by almost 20.3%, from Rs. 31,050.16 crore (US$ 4.16 billion) in FY22 to Rs. 37,383.36 crore (US$ 5.01 billion), according to the Union Budget 2022–23.
- The Rashtriya Uchchatar Shiksha Abhiyan (RUSA) programme was given Ministry of Education approval in February 2022 to operate till 2026.
- The early childhood care and education are emphasised in the National Education Policy (NEP) 2020. A 5+3+3+4 curricular framework will take the place of the 10+2 structure now used in school curricula.
- The continuation of the Samagra Shiksha School Education Scheme in 2021, from April 1, 2021, to March 31, 2026, was approved by the Cabinet.
- NISHTHA 3.0 Foundational Literacy and Numeracy (FtN) was made available online on the DIKSHA platform in September 2021 for teachers and administrators in educational institutions from preschool education to class V.

4.1 Significance of EduTech in India:

- Improved Teaching Operations

The advantages that technology brings for education also extend to professors. When it comes to collective management, technology allows faculty members to provide equal opportunities. As the third decade of the twenty-first century approaches, an increasing number of inclusion & diversity

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software programmes attempt to aid management in recruiting and fostering individuals with less insentientprejudice. Professors can gather student materials and provide feedback to students using internet-based communication and course administration systems. This allows teachers to keep track of data on learner efficiency and assess anomalies over time to identify which course aspects need to be changed.There are several chances for teachers to improve student learning via the use of technology today. People use technology heavily in their daily lives, therefore it's important to teach children how to use it from an early age. Children who use technology in preschool will feel stronger and more comfortable with their computer skills as they get older. Because so many children now have easy access to a variety of technologies at home, they will have no problem using educational technology. Elementary school teachers use various digital tools to help their students and offer a pleasant learning environment.

- Accessible online degrees/Distance Education

The availability of online degrees is currently fairly common. People are intrigued in taking online courses for education and certification. Outstanding online programmes are offered by reputable universities using a range of methods including the internet. This concept will acquire more traction as it becomes more widely accepted and recognised. Across the world, learners who have careers and desire flexible study alternatives are becoming more familiar with the online degree industry. Physical participation in classrooms is no longer absolutely essential thanks to the advent of online university courses. Even a few global colleges have started to offer online degree packages to students. Distance learning and learning via the internet are becoming more essential components of the academic setting.

- Student Motivation

When given the opportunity to engage in hands-on learning activities, which many types of educational technology offer, many pupils are more motivated and likely to learn. As kids learn how to utilise it, their self-esteem grows and their passion for education grows.Due to the fact that devices like laptops and tablet computers encourage interactive, hands-on learning, technology in the classroom enables students to be more in charge of their education.Every kid grows at their own rate. Students may gain from the use of technology in the classroom in a number of ways, including the ability to enquire at their own speed and retain material. For instance, utilizing laptops or tablets for in-class courses or activities that encourage children to read directions, absorb content, and accomplish work at their own leisure. It also allows teachers to devote more time to pupils who may require it.

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- Increased Engagement in learning process

By the use of online questionnaires and other technological resources, students are urged to engage in the educational process. This is especially advantageous for those who are timid, hesitant, or have trouble taking the lead. With digital tools, teachers may get regular feedback, such as by making online tests to gauge student happiness. It is also very easy to assess the ability of students due to easy collection of assignments and their evaluation. The subject is chosen by the teacher for individual study, and thereafter, the students are tested to determine their degree of mastery. The students are then engaged in discussions to fill in any knowledge gaps that may exist.

- Continuous Connectivity and Internet Access

In the previous 10 years, the importance of the internet has significantly expanded. At this time, it is hard to exaggerate its relevance in the sphere of education. The internet is a blessing for students despite the risks of fraud and other issues. The Internet offers students a wealth of tutorials, instructional resources, and other tools to support their learning and academic performance in addition to its remarkable ease.When using projectors and images instead of words, visual images always hold more appeal.Using projectors and pictures to improve learning is a fantastic technical application. Top universities all around the world utilise Microsoft's outstanding PowerPoint and projection to make classes lively and interesting. One technology tool that may be utilised in classrooms and colleges to foster engagement, attention, and motivation is the projector. Students select intriguing images and content that stimulates independent thinking rather than simply reading text. With the advancement of technology, active learning is becoming increasingly effective.

- Need of On-Demand Learning

Modern technology made learning outside of the classroom very easy and accessible for all. Using tools like Zoom and Microsoft Teams, instructors may deliver instruction remotely. In response to the COVID-19 pandemic in 2020, education forced to adopt an online methodology, enabling students to take part in classes from the home environment and, for instance, to seek their teachers for immediate assistance with their assignments.The traditional school system's demanding schedules no longer have to be a barrier for students who want to acquire a top-notch education. Candidates for competitive exams, in particular, frequently juggle employment and education at once. The scheduling of the classroom is rarely in sync with their employment schedule. With on-demand training, the odds are in the students' advantage because they may now access courses and study materials at any time, on any device.Everyone in the modern world has to possess the core skills required to function in a digital setting. Being proficient with Google is just as important as

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being proficient with PowerPoint or Zoom. Learning digital communication ethics is a crucial component of acquiring digital skills, both for school and employment.

- Encourages Conversation in the Classroom Rather Than Listening:

Professors are increasingly urging students to complete "homework" in class while reading and studying at home in the wake of COVID-19. The same subjects are addressed in class as well as through online reading assignments and video-based learning.
Through problem-solving in front of their classmates and teachers, this tactic aids in the creation of an engaged learning environment where kids may learn. You can learn more effectively as a result. Teachers strive to expand students' knowledge by asking them questions, engaging them in individual or group activities, and engaging them in other learning activities. The flipped learning approach as a consequence encourages collaboration and teamwork and fosters a joyful learning environment.

- Active and Interactive Materials

Online learning allows students to interact with their course materials while also promoting classroom engagement. Thanks to tools like drag and drop and click and reveal, students may engage with their course material through online learning. Students may easily access the course materials on any platform and device of their choosing thanks to the adaptable design of the course materials. The text is also embedded with a range of interactive elements, such as external links, movies, music, etc., to increase engagement. Educational vendors and institutions also incorporate gamification and interactive tests and assessments to make the course module more challenging for students. When course content is interactive, students learn new information faster.

4.2 Challenges Faced by EduTech In India

- Gender Inequality

The increasing use of digital education has widened the gender gap as majority of the people provide smartphones needed for education mainly to boys as compared to girls, in states where gender inequality pertains such as Bihar, Rajasthan etc. Also girls are tend to focus and spend a disproportionately longer time in the household chores rather than in studying as compared to boys.

- Limited Attachment towards learning

Online education cannot provide practical knowledgeable or laboratory sessions required for subjects such as Science and Technology. It is also not possible to complete the dissertation projects and field trips for complementing theoretical studies as there is no direct emotional

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connect between teachers and their students. This particular aspect is severely limited in online/distance or digital education.

- Limited Enhancement of Social Skills

The major focus of education lies with enhancement of social skills of students along with their leaning. Education involves more than simply imparting subject-specific knowledge; it also involves cultivating Students' social skills and sportsmanship have improved over time. If children exclusively obtain their education online, their holistic development may be hindered, and many may suffer later in life in both their professional and personal realms.

- Issues with Education-learner technological adaptability

It's normal to use the internet for amusement, but using it for online education is difficult to adapt and learn. Teachers might not have much experience and knowledge access producing digital content or efficiently communicating it online. There are also personal constraints that sometimes restrict people to learn new and adapt new technologies, not everyone is that much reluctant to change.Similar to this, it is unjust to suddenly expect them to update and pupils to adapt.

- Malpractices of EduTech Business

The market for digital education is expanding, and Edtech businesses may use various sorts of commercial fraud to draw customers. Recently, concerns about deceptive advertising and unethical business practises have surfaced. According to the Department of School Education and Literacy, ed-tech companies prey on low-income families by promising parents free services, convincing them to sign the Electronic Fund Transfer (EFT) Mandate, or convincing them to turn on the auto-debit feature.

- Lacking Digital Infrastructure In India

Despite of several initiatives undertaken by government we are lacking behind in the development of digital infrastructure due to rigid and non-reluctant behavior of consumers. India has a diverse population in terms of geography and culture, but it also has a vast socioeconomic gap, which is reflected in the unevenness of its digital infrastructure facilities.

Power outages and poor or nonexistent internet access are two main obstacles preventing the spread of online education at the grassroots level.

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4. Conclusion:

Technology improvements result in ongoing changes to how people live and work. An increasingly popular learning tool in schools is the internet. This entails providing each kid with a valuable educational opportunity. The information in this study shows how technology improves educational outcomes for students. Integration of technology has been shown to be advantageous for students with special learning difficulties as well as for other age groups despite of various challenges associated with it, which we are trying to overcome through outraging initiatives.

Furthermore, the virtual age no longer hinders learning; on the contrary, it helps educators foster a positive learning atmosphere. When properly employed, technology may increase learning fun and help college students achieve outstanding achievements.It makes sense that educational institutions would want more now that they have witnessed how technology has improved education. As we start a new decade, it couldn't be more ideal for colleges to seek for methods to increase their effect. Universities can discuss objectives for each department and organisation as a whole & begin bending them into a strategy by bringing representatives from several departments together. Imagine where we may be in ten years if all of this is feasible when we enter the third decade of the twenty-first century. This is the crucial time that we change ourselves and delve into more challenges so that teachers make the best use of technology tools available and can benefit the students that are in need of it.

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