

# An evaluation of the ed-tech sector in India

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## Abstract.

This qualitative research paper seeks to deliver an exhaustive analysis of the Ed-Tech sector in India by assessing its present condition, pinpointing significant trends, and investigating the elements driving its expansion and obstacles. It examines the various instructional technologies utilised, including online platforms, mobile applications, virtual classrooms, and adaptive learning systems. The study rigorously evaluates the efficacy and consequences of various technologies on educational outcomes, alongside their effects on student involvement, accessibility, and equity. This report examines the drivers behind the expansion of the Ed-Tech sector in India, including rising smartphone usage, enhanced internet access, supportive government initiatives, and evolving perceptions of online learning. It also examines the obstacles encountered by the sector, including the digital divide, insufficient teacher training, issues related to data privacy and security, and the necessity for regulatory frameworks. It analyses their strategy, business structures, and collaborations, emphasising effective practices and insights gained. This research study presents a comprehensive examination of the Ed-Tech sector in India, offering significant insights for policymakers, educators, investors, and stakeholders in education. The study's conclusions relate to existing literature on Ed-Tech, aiding in the formulation of future initiatives, policies, and investments in the Indian education system.

**Keywords:** Learning, Ed-Tech, Technology, Education, Hybrid Learning.

## 1 Introduction

### 1.1 What is Ed-Tech?

The phrase "Education Technology" may alternatively be abbreviated as "Ed-Tech." The usage of computers, software, and educational systems provides students, employees, and other users the chance to enhance their knowledge and obtain training [1]. The expansive domain of educational technology encompasses not only the hardware and software associated with "remote learning," "distance learning," or "online education," but also the theories of learning and ongoing research into the most effective methods for imparting new knowledge and skills to individuals [2]. CFI, an early entrant in the Ed-Tech sector, offers training and certification to current and aspiring professionals in global financial services [3].

#### 1.1.1 Highlights

- Online learning is increasingly being adopted due to its numerous advantages for both educators and learners [4].
- Ed-Tech, an abbreviation for educational technology, encompasses the comprehensive domain of computer-assisted education and training.
- CFI was among the pioneering organisations to provide online education, certification, and training for financial professionals [5].

### 1.2 The expansion of educational technology

The history of instructional technology extends further back than most individuals comprehend.

The incorporation of computers in education is a logical consequence of scientific and technical progress [6]. In the mid-20th century, educational institutions and training organisations began to utilise readily available technology, such as copiers and instructional videos [7]. The implementation of computers to assist in the instruction of disciplines such as mathematics and spelling was initially attempted in classrooms during the 1960s. By 2010, it was anticipated that approximately six million students in the United States would be enrolled in online courses [8]. The expansion of online education occurred subsequent to the general availability of internet connection [9].

The Open University in the UK and the University of British Columbia in Canada were among the pioneering institutions in interactive online education [10]. This enabled dialogue and teaching between professors and students, as well as among the students themselves [11]. Advancements in video conferencing software and multimedia resources have rendered Ed-Tech more accessible and effective than ever before. Recent advancements in educational technology encompass the utilisation of "robots" in classrooms to assist students with note-taking and the adoption of blockchain technologies to facilitate the grading of student assignments by professors [12].

### 1.3 Benefits provided by ed-tech

Utilising technology in the classroom offers numerous substantial benefits. Educators assert that there exists a broad spectrum regarding the methods and pace at which

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students acquire knowledge [13]. Certain students, for example, acquire knowledge more effectively by reading, whereas others excel with visually presented resources. Ed-Tech enables students to pursue their education from locations they deem most advantageous [14].

Students seeking online courses frequently emphasise the flexibility it offers about the timing and location of their education [15]. The capacity to engage in online learning at the learner's convenience significantly enhances the accessibility of education and ongoing professional development for a diverse array of individuals across various contexts [16]. Individuals with full-time employment who find it challenging to accommodate conventional university lectures may derive significant advantages from this alternative [17]. One of the most evident advantages of Ed-Tech is the potential for substantial financial savings in the classroom [18]. One can obtain a high-quality education online at a far lower cost than enrolling in a university or a local community college [19]. Online education significantly enhances accessibility to degrees and professional certifications for anyone interested in pursuing them at a more affordable cost [20].

#### **1.4 Advantages of educational technology for students**

Students across various age groups are reaping the advantages of enhanced learning possibilities facilitated by technology, which also fosters diversity and collaboration inside the classroom. Five principal methods by which educational technology is currently transforming children's learning are outlined [21].

##### **1.5 Enhanced cooperation**

Tablets and cloud-based technologies facilitate enhanced collaboration among students in the classroom. Tablets with educational games and online classes provide children with the resources necessary for collaborative problem-solving [22]. Cloud-based applications enable students to upload their work, engage in virtual discussions regarding their ideas, and receive assistance from peers without the necessity of in-person meetings [23].

##### **1.6 Continuous access to education**

IoT devices are facilitating comprehensive participation for students in online classrooms [24]. Students can now complete their academic assignments at any time and place via Wi-Fi and cloud access via a connected device, rather than solely within a classroom setting. This includes the school bus and the home environment [25]. Numerous applications facilitate communication between students and educators for enquiries or to notify an instructor of an emergency [26].

##### **1.7 “Flipping” the classroom**

Educational technology is transforming our perceptions of instruction and learning within the classroom [27].

Typically, students initially attend class to acquire new knowledge or attend lectures, subsequently returning home to finish assignments and other projects [28]. Students can now access lectures at home at their convenience using educational applications and video recordings, thereby allocating class time for collaborative group projects [29]. Children flourish in this classroom model since it encourages critical thinking, individual expression, and peer collaboration [30].

#### **1.8 Customised educational experiences**

Educators can customise their lectures to meet the individual needs of their students through the utilisation of Ed-Tech technologies [31]. This technique aims to customise the learning experience for every student [32].

Video content technologies enable students to progress at their own pace and assess their comprehension of the subject by pausing and rewinding lectures [33]. To assist students facing challenges, educators can employ data analytics to identify those experiencing difficulties and the specific classes causing issues [34]. Instead of employing anxiety-provoking assessments to gauge student advancement, educators are progressively adopting applications that can offer a more precise representation of students' fundamental competencies [35]. By employing continuous assessments that reveal learning patterns, educators can develop tailored instructional strategies based on each student's distinct set of strengths and weaknesses [36].

#### **1.9 Engaging instructional sessions**

Do you remember daydreaming or only partially attending to a lecture? Given the multitude of distractions in the classroom, such as students' electronic devices and external influences, it is more essential to provide courses that are engaging and practical [37]. Proponents of instructional technology assert that the issue can be resolved with appropriate tools [38].

#### **1.10 Advantages of educational technology for educators**

The advantages of Ed-Tech beyond mere student engagement. Educators perceive innovation in education as a means to develop engaging teaching methodologies and reduce instructional time [39]. Here are four distinct methods by which Ed-Tech is assisting educators in returning to their areas of expertise: Instruction [40].

##### **1.11 Automated assessment**

The use of artificial intelligence-driven educational technology simplifies assessment. These applications employ AI to analyse and evaluate reactions according to the project's requirements [41]. When employed for more objective tasks such as true/false or fill-in-the-blank assessments, these technologies can substantially reduce the time teachers spend on manual grading [42]. Increased time off allows educators to reduce lesson preparation and

allocate more time for individualised student support across diverse ability levels [43].

### **1.12 Educational management instruments**

Let us be candid for a moment: orchestrating a large assembly of children to engage in any activity may prove to be challenging. Every facet of classroom dynamics, including teacher-student interactions and student behaviour, can benefit from the enhanced utilisation of technology tools [44]. Alongside applications that provide reminders for projects or homework assignments, there are also innovations that enable students to self-monitor classroom noise levels [45]. The utilisation of management tools in the classroom fosters a less chaotic environment, hence enhancing teamwork among students [46].

### **1.13 Digital Classrooms**

Due to developments in educational technology, schools are no longer burdened with allocating finances for printers, managing paper waste, or investing time at the copy machine. Transitioning to a paperless approach facilitates the grading process, diminishes the time allocated to locating and organising numerous student assignment files, and encourages environmentally sustainable teaching practices [47].

### **1.14 Eradicating uncertainty**

Educators invest considerable time evaluating their students' strengths and areas for enhancement [48]. Educational technology has the capacity to transform all aspects [49]. Currently, educators can utilise an abundance of resources, such as data platforms, applications, and tools, that consistently evaluate their students' competencies and customise education accordingly [50].

### **1.15 The Indian ed-tech sector is propelling India into the global stage**

The Ed-Tech sector in India has surged significantly in recent years, establishing it as a global hub [51]. The legislative sector acts as a facilitator, while the private sector plays a vital role [52]. The pandemic resulted in an influx of Ed-Tech support for India's educational sector [53]. There are certainly certain advantages of Ed-Tech compared to traditional training that merit consideration. Now is the optimal moment to define the new "normal" of our educational district will encompass [54].

The Ed-Tech sector in India has exploded in recent years, establishing it as the global epicentre. The legislative sector acts as a facilitator, while the private sector plays a crucial role [55]. The epidemic resulted in an influx of Ed-Tech support for India's education sector [56]. There are certainly certain advantages of Ed-Tech over traditional education that warrant consideration. It is now appropriate to define the new "normal" of our educational sector [57].

Ed-Tech enables students who are unable to adhere to the rigid deadlines of the traditional education system to access quality education [1]. This is crucial in low-income families since children frequently assist their parents with work or household chores during the day, when schools are generally in session [58]. By addressing instructor accessibility problems, it also mitigates the challenge of pupils from such households being unable to afford quality education [59].

Ultimately, Ed-Tech modules surpass traditional textbooks when regarded as an enhancement to conventional education rather than a complete replacement [60]. Enhanced asset pathways, audiovisual materials, and interactive features facilitate a highly engaging educational experience [61].

This is not to contend that Ed-Tech programs are devoid of challenges and shortcomings. The absence of adequate infrastructure, insufficient accessibility, and the digital divide persistently hinder the growth of Ed-Tech [1]. An Ed-Tech coalition is striving to eliminate unethical business practices and deceptive advertising that have recently emerged through self-regulation [62].

Over 4,450 Ed-Tech organisations in India are assisting more than 300 million students in classrooms [63]. Among these, 40 million are advanced education students whose studies were disrupted by COVID-19 [64]. The disparity in educational quality between the affluent and the impoverished in India may finally be bridged by the nation's Ed-Tech sector, enhancing the prospects of success for individuals from all economic backgrounds [65]. The surge of Ed-Tech in India is also attributed to factors such as the prevalence of passionate entrepreneurs who develop innovative products and methodologies, alongside access to a substantial pool of competent educators [66]. These business individuals adopt a multicultural approach to solve the challenges of a nation with a diverse population [67]. International students are enrolling in Indian Ed-Tech companies due to their affordability and the provision of high-quality content [68].

Many Indian Ed-Tech companies are gradually expanding their global presence by partnering with foreign universities or acquiring international firms [69]. These organisations are expanding because they believe their services are of superior quality. And global accords provide companies with greater visibility and access to funding in developed countries such as the United States. The 2020 Public Schooling Strategy, which promotes education at international universities to position India as a hub for global education, has enhanced these links [70]. These collaborative initiatives should provide students access to interdisciplinary programs and a superior learning environment [71].

Indian Ed-Tech organisations are collaborating with the public sector to eliminate our significant gap by providing underprivileged groups nationwide access to education. State governments have also responded to the

pandemic's challenge by creating an educational ecosystem outside the traditional classroom environment. The Public Authority School Change Program exemplifies the Odisha government's 5T initiative (Transparency, Teamwork, Technology, and Timeliness Leading to Transformation). To facilitate the closure of the digital divide, it would be advantageous for the state government to establish tablet distribution guidelines in collaboration with Ed-Tech companies [72].

Contentment has consistently been advantageous to us. In the past decade, we have observed the rise of a whole sector that leverages technology to deliver superior content and innovative solutions. State governments are tasked with maximising these resources for the benefit of the populace [73].

In its 75th year of independence, India is rightly asserting its prominence, with the Ed-Tech business exemplifying a sector that is disseminating Indian pedagogy globally [74]. Historically, it garnered attention when an Indian-born CEO ascended to significant leadership roles inside Fortune 500 corporations. Indian Ed-Tech enterprises are significantly impacting both Indian and foreign individuals through the application of Indian and many other techniques and instruments [75].

### **1.16 What is the future of educational technology in india?**

The recent reductions in the region result from a strategic shift and realignment of the action plan, expenditures, and investments, according to industry experts. Ed-Tech is not merely a trend but a tangible reality that has experienced remarkable growth in recent years, is here to stay, and possesses a promising future [76]. The Ed-Tech sector in India, valued at \$750 million in 2020, is projected to reach \$4 billion by 2025, however it appears to be facing challenges [77]. India has excelled in the Ed-Tech sector due to the magnitude of the anticipated market. Subsequent to the pandemic, there was a sudden advancement and swift escalation that favoured Indian Ed-Tech enterprises [78]. Byju's, the Ed-Tech giant, is reportedly intending to terminate over 12,000 employees in 2019. This follows the company's announcement earlier this month regarding the reduction of expenses by laying off around 2,500 employees across several departments [79]. Byju's announced its objective to reduce approximately 5% of its 50,000 employees across several departments, including product, content, media, and technology, over the next six months, likely representing one of the largest layoffs by a major startup [80]. Approximately 45% of the over 15,000 layoffs in the Indian startup ecosystem this year can be attributed to the Ed-Tech sector. As reported by Inc42, Byju's executed the largest layoffs in the Ed-Tech sector, dismissing around 4,000 employees across its subsidiaries [81].

Kumar believes that firms excessively displayed flamboyance to acquire companies, invest in products, and attract customers and talent [82]. The industry's rapid

expansion attracted investors, prompting hiring to facilitate future growth and maintain a competitive advantage [83]. He asserts that the epidemic accelerated the acceptance of digitalisation [84]. All activities returned to normal following the conclusion of the lockdown. The students wished to return to high school and college [85]. Educational technology is essential for closing the disparity between the accessibility of trained educators and the provision of high-quality education in the most remote regions of the country [86]. Educational technology is a viable choice for K–12 pupils, higher education learners, and adult learners [87]. Kumar asserts that the Ed-Tech alternative may serve as a supplementary resource rather than the primary medium for education [88]. Virtual learning cannot completely substitute for physical campuses, interactions between students and teachers, and interactions among students [89].

Even the most prestigious colleges and universities were compelled to adopt a digital platform due to the Covid-induced global lockdown, which equalised opportunities for Ed-Tech firms that leveraged the digital realm to deliver education and initially experienced substantial growth [90].

### **1.17 What accounts for the abrupt decrease in ed-tech financing?**

According to the Inc 42 article [91], as many as four Ed-Tech companies, including Lido Learning, Crejo.Fun, Udayy, and SuperLearn, have allegedly halted operations due to the financial crisis. Kumar indicates that the projected sector growth has been diminished, and the returns fall outside the expected range [92]. The majority of Ed-Tech companies are operating at a loss, necessitating a reassessment of their business models to ensure sustainability [93]. The sector is expected to regain its attractiveness for investment, but likely not to the same extent, as financial discipline begins to establish itself [94]. He stated that the current period is opportune for consolidation, suggesting that mergers may be imminent [95].

Chandra asserts that the financial crisis is only transient and the sector would recover in the forthcoming months [96]. The need for proficient developers and data scientists is unprecedented, resulting in a surge of users on upskilling platforms [66]. The availability of web development and data science courses for working professionals at their convenience, without disrupting their employment, is another factor driving demand [76].

### **1.18 What is the future of ed-tech in india?**

According to industry observers, educational technology has shown remarkable growth over the past two years and is not a transient trend [4]. This explains why it will persist on its current trajectory and possess a promising future [83]. He further asserted that the advent of the digital university and the creation of online campuses by international institutions bolster the argument for Ed-Tech

[41]. Society, overall, has gained advantages. Ed-Tech has enhanced education by rendering it more personalised, equitable, unbiased (bridging the economic divide between affluent and low-income groups), and accessible. The advanced separation must be terminated, and accessibility should be increased [84].

Saurabh Deep Singla, CHRO of UpGrad, a premier higher education technology company in Asia, asserts that Ed-Tech remains nascent and possesses significant potential to generate innovations and outcomes that will enhance the lives of millions [34]. There is an increasing use of online and Ed-Tech products among consumers due to India's growing internet penetration; yet, it is still in its nascent stage [22]. Dynamic business visionaries have developed their products and services to facilitate a continuous flow of education while also accelerating India's educational trajectory in non-metropolitan and rural areas, due to the recent decline in traditional learning opportunities, he continued [68]. According to the PwC India report titled "Startup Arrangements Tracker - Q3 CY22," financing in the Ed-Tech sector has demonstrated a favourable trend compared to the previous quarter (in value terms).

UpGrad, which secured \$225 million in Q3 CY22, and Sunstone, which obtained \$35 million, collectively accounted for 81% of the funding activity. Chandra asserts that the Ed-Tech sector within the startup ecosystem is flourishing [50]. It is significantly more exhilarating than it has ever been. Over the past two to three years, the business has experienced a significant increase in the number of startups, with thousands of new companies entering the market, as stated by Basu & Majumdar [74]. According to a recent Technavio analysis of the online education market, India's sector is projected to grow at a CAGR of 21% between 2020 and 2024, reaching a market size of US\$ 14.33 billion, indicating a highly promising future for this industry. An extensive untapped market will facilitate a promising future for Ed-Tech companies in India, as internet usage is increasing and public awareness of Ed-Tech and digital innovations is growing in remote and rural areas [85]. The primary challenges confronting the education industry stem from diverse contexts, including technological and infrastructural deficiencies as well as behavioural factors. To establish an adequate educational infrastructure and delivery system for inclusive learning, Ed-Tech companies must partner with both public and private educational institutions, he stated [94].

The research is separated into three phases:

- Diagnosis Phase.
- Design and Analysis Phase.
- Implementation Phase.

The initial phase of a project is the diagnostic stage, whereby the researcher identifies opportunities for enhancement inside the organisation and the challenges it presently encounters. Each research project commences with a problem [45]. A problem is a constructive

hypothesis that a researcher formulates to execute a research project or address an issue, so enabling the organisation or firm to resolve the problem and progress towards enhancement [21].

The COVID-19 pandemic halted global activities, severely impacting the education industry worldwide. The pandemic significantly undermined the trust of nearly everyone [49]. CleverMinds CJ possesses significant potential to assist individuals in restoring their faith and confidence [52].

As part of the MAP initiative, our initial duty is to identify possibilities and challenges for the selected firm, CleverMinds CJ. Subsequently, we will endeavour to tackle matters related to business operations [19].

### **1.19 Drawbacks of absence of hybrid classes**

- Effective time management becomes a challenge for students residing off-campus.
- No recordings or other forms of material are reliably available for students who missed the class or for future reference.
- Students may lack the opportunity to acquire knowledge about emerging technology.
- An absence of advanced technologies.
- Costly educational approach.
- Restricted learning duration.
- Dependence on educators.

### **1.20 Identification of the Problem**

CleverMinds. CJ is an offline service that provides corporate training to enhance employee morale and English ability [75]. They cannot perceive the overarching perspective due to their restricted scope. Their limited reach hinders their ability to generate sufficient revenue, and profit maximisation is becoming problematic, as evidenced by Vidani [91]. They conducted offline sessions and attended workshops, which, unfortunately, failed to attract a substantial audience and eventually hindered their efforts [53].

Transition from Offline to Online Presence: A significant challenge arose in delivering lectures in offline form due to connectivity constraints with a substantial number of students. Students must either exit the class or independently acquire the material if they cannot attend any sessions. Online lessons are preferable to offline programs for individuals who are ill or face other barriers to attending.

Transitioning from group to individual target audience: The provision of one-on-one lectures was hindered by the substantial financial load on individuals. The organisation is seeing difficulties in locating students in groups, resulting in a decrease in course sales. Occasionally, a disparity in comprehension levels among students within groups arises; if one student struggles to grasp the issue, all group members must constantly review the concept. This results in the time wastage of all other group members.

The company is encountering difficulties in offering courses individually rather than as a bundled package. The corporation has amalgamated classes on all topics, resulting in challenges for both the organisation and the students. The organisation must offer the courses in a bundle, and students encounter difficulties in comprehending the full bundled courses. This results in a fall in student morale due to the mere observation of the entire course, ultimately posing a danger to course.

### 1.21 Prospects

If CleverMinds, a corporate training institution, extends its online market and begins providing its sessions as courses, it will encounter numerous opportunities and enhance its profitability. Utilising social media marketing, they may promote their courses and seminars globally. As they acquire information from COVID-19, they can commence online courses and deliver online training, resulting in time and resource efficiencies. They can partner with esteemed universities and exceptional persons globally to provide online guest lectures.

## 2 Purpose of the research

- Identify the opportunities available to the company.
- Identify the challenges encountered by the company.
- Propose solutions for the company.
- Present the proposed solutions.
- Execute the strategy to convert opportunities into action.
- Analyze the outcomes of the executed strategy.
- Assess the results.

## 3 Theoretical framework

According to Harasim [10], a greater number of individuals than ever before are drawn to new innovations and online education. Web-based learning can be an exciting method for conducting examinations from the convenience of our homes, whether we are working professionals with many deadlines or students with multiple assignments due. Employing an online platform such as Google Classroom for language instruction from an educator might result in more economical individualised tutoring. Technology influences student learning. noted that due to the numerous advantages provided by virtual or remote classrooms, some individuals would prefer the distance learning option. When the technology functioned effectively and did not hinder channel transitions, students engaging in interactive online classrooms expressed their satisfaction with the experience. The application of innovation by students may be resisted for several reasons. Students may believe that the mediated experience cannot fully replace the authentic experience due to the likelihood of technological failure, their unfamiliarity with machines, and the prevalence of these factors.

Hennessy [74], they conducted a study on the advantages and disadvantages of online versus traditional education in India. Given that each option possesses distinct advantages and disadvantages relative to the

others, it is challenging to determine which is the superior decision. It is challenging to replace the traditional, in-person classrooms employed in conventional educational institutions. Web-based learning is beneficial for certain courses and can enhance the educational process, making it more engaging and participatory. Once life returns to normalcy following the Coronavirus period, we should resume conventional classroom instruction.

Ideland [20], conducted a study on the efficacy of online and offline learning in higher education in India, Indonesia, and Malaysia, involving 100 respondents. The findings of the review indicated that traditional classroom instruction is more effective than online instruction.

Jena [69], she administered a survey of 450 students regarding the efficacy of online teaching and learning methodologies for college and university attendees. Research indicates that online learning is advantageous when employing methods such as animations, PowerPoint presentations, and video lectures.

Jha & Jha [81], conducted a cross-sectional study involving 320 pupils to compare conventional and online education during the COVID-19 pandemic. The study determined that, considering the pandemic, it is essential for governments and global policymakers to address citizens' access to and utilisation of online learning resources.

Blended learning research should focus on the methodology of integrating offline and online learning modalities while considering the quality of students' learning experiences. This study aims to determine the superiority of face-to-face classroom training over online instruction (e-learning).

Kamalakar & Kamala [65], the case asserts that internet-based courses are entirely delivered online. The Internet and communication technologies are employed in online education, ranging from using the Internet as a research tool to participating in online classes. The internet is occasionally employed to enhance instruction, such as when a website is utilised to update students enrolled in in-person courses. Any course delivered to students who are not in the same classroom is also referred to as online education. These may be accessed via Google Homeroom, online courses, and WhatsApp. Any discovery that is electronically facilitated or manipulated by exchange software can be referred to as e-learning, according to the assertion.

Althaus [97], this study examines the impact of incorporating computer-mediated discussion (CMD) into in-person debates inside large lecture courses on undergraduate students' academic performance. The study examines the characteristics of students who choose to engage in CMD groups, despite participation being voluntary and offering minimal credit. A quasi-experimental study with 142 undergraduates revealed that a blend of face-to-face and computer-mediated interaction fosters a learning environment that surpasses that of the conventional classroom, as indicated by student

evaluations and academic performance metrics. Participants in CMD groups reported enhanced learning compared to their peers, and they generally achieved superior grades relative to individuals who exclusively participated in face-to-face discussions.

Sullivan [98] asserts that the effectiveness of instruction and student learning are substantially affected by teachers' oral fluency in the target language. The educators employ directive language in the classroom to guide student conduct and elucidate tasks.

### 3.1 Interpretation

1. Data indicates that web-based learning among higher education students is monotonous and time-consuming, as students struggle to adapt to the myriad of available online learning methodologies. In the realm of education, traditional offline learning is regarded as the most effective method due of its simplicity and foundational nature.

2. Online learning will be more effective during the pandemic and in the future. The majority of students believe that online learning technologies will provide significant advantages, enhancing their learning and academic performance, as traditional classroom settings and manual labour are likely to become obsolete in the near future.

3. Prior studies have shown that the learning process is augmented when conventional education is complemented by online learning platforms. This approach is termed blended learning.

4. Students residing in remote areas from their college or institution may find online learning to be the most advantageous way of instruction. The findings indicate that the majority of students believe that online learning is the only instructional option that conserves their time when studying during the pandemic. This conclusion relies on the results, which indicate that the findings reveal the outcomes.

5. Consequently, we can assert that online learning is the most effective method for both instructors and students to ensure continuity in education moving forward. However, this online teaching method also presents complications, such as difficulties in instruction, technical concerns, limited attention spans, and a lack of engagement among students.

### 3.2 Alternative courses of action

The initial alternative proposed to CleverMinds.CJ aims to transition from offline mode to a hybrid format to enhance its reach. Studies indicate that organisations can gain advantages by providing online courses. Your personnel will be better equipped for the next tasks. As productivity improves, corporate expenditures can be deducted more swiftly.

The convenience of online learning enables individuals to broaden their perspectives and apply their acquired knowledge in everyday life. Enhancing long-term memory retention is an additional advantage. The data collected from students is essential for enhancing pedagogical approaches and improving retention rates.

Research indicates that e-learning platforms surpass all prior methods in data collecting and analytics processing efficiency.

Institutions of higher education can now gather and assess data on student attrition rates, providing insights into potential curricular enhancements. After implementing the adjustments, they may re-execute the analyses to ascertain whether the outcomes have enhanced. Valuable insights can be derived from student data, but their complete utility will only be acknowledged in the future.

The second recommendation is that individuals should select package courses according to their requirements. No solution will fulfil the desires of all individuals. Online education provides several learning modalities to accommodate students within their curricula. Students are motivated to seek higher education without the necessity of completing undesirable courses. Online education facilitates student personalisation. It enables pupils to determine their own pace and path. E-learning is cost-effective. Educational institutions reduced expenditures on student and staff transport and accommodation, resulting in decreased costs. Absence of costly textbooks mitigates student debt. The approach is environmentally sustainable as it does not require the printing of textual materials.

The most recent proposal we have put up is to modify the method for demonstrating using accounts. In a typical homeroom, educators adhere to their error-prone instructional approaches. E-learning alleviates these concerns by providing standardised and consistent instruction. Web-based learning enables instructors to deliver standardised content with greater inclusivity, ensuring that all students receive an equivalent amount of information. Numerous institutions worldwide are experiencing a shortage of skilled educators. Through e-learning, a few highly educated and experienced instructors can educate hundreds, if not thousands, of students.

A distinctive benefit of e-learning is the ability to access study materials repeatedly as needed. Disregard the practice of bending over your desk to capture every lecturer's word while taking notes in an illegible handwriting. Online courses offer the flexibility to effectively prepare for your exams without the necessity of commuting to campus.

## 4 Methods

This study was generated by secondary data analysis, employing data obtained by others for their own purposes. Researchers employ secondary data analysis to address a novel research topic or explore a different viewpoint on the original subject of a prior study.

## 5 Results and discussion

### 5.1 Solution Implementation

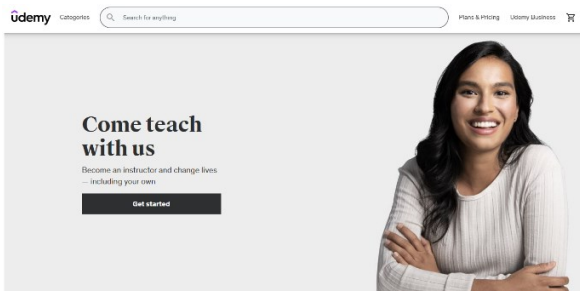


Fig. 1. Udeemy Platform.

The solution to improve visibility on the Udeemy platform was implemented through a hybrid approach, yielding successful results. Udeemy, Inc. is a company that focusses on educational technologies and provides a digital platform for delivering education and training to learners. We have developed several courses available for purchase on the Udeemy marketplace due to the creation of a specific identifier for our usage. This method enables the provision of online instruction across a wide array of subjects, hence facilitating access to higher education for a substantial number of new students.

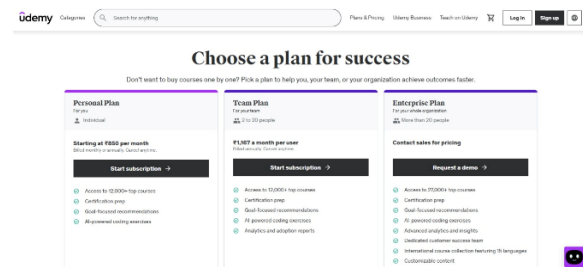


Fig. 2. Udeemy Platform 2.

We have created audio and video classes in both languages to aid individuals in acquiring proficiency in all four English skills: reading, writing, speaking, and listening. These classes are available on our website in Hindi and English. We have implemented measures to distinguish one course from the others, so enhancing students' ability to choose classes that align with their interests. Furthermore, it will aid them by facilitating the selection of a suitable course at a price that aligns with their financial capacity.

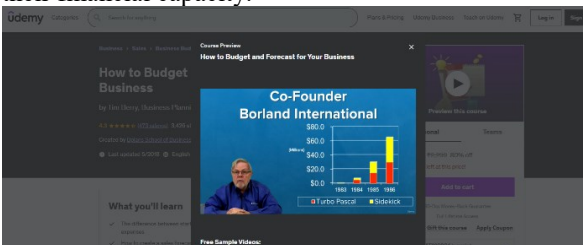


Fig. 3. Udeemy Platform 3.

Furthermore, we have suggested that the instructor produce both audio and video records for use in her classes. This strategy provides the student or subscriber access not only to a course of study but also to a suite of tools for practical application of their learning. This feature enables both the teacher and the student to customise their experience to a certain degree. Furthermore, we have granted students access to sample

tests and additional resources specifically designed to meet the unique demands of their courses and the nature of their assessments.

## 6 Conclusion

1. Flexibility for Educators: The scope of educators is broadened by instructional technology beyond classroom hours and available time. Computerised assessment provides instructors with more opportunities to engage with students in meaningful and personalised manners. Guided by innovation, educators today possess a greater array of instructional tools to engage and challenge a larger number of students.

2. Variability for Learners: Students possess greater autonomy over their learning and can engage with course material in the most effective manner due to the extensive array of digital resources available in standard online course components, including text, video, assessments, and interactive elements. Some students will choose to read texts rather than watch films. Some perform the opposite. Individuals may commence by evaluating the course material independently. If a system facilitates learning, it is valid. The use of sophisticated media enhances students' mastery of their education. Educators find it easier to assist pupils in studying the material due to the variety of options at their disposal. The learning approach of each student depends on their ability to learn and focus according to their individual preferences.

3. Enhanced Student Engagement: Some students were raised during the prevalence of cell phones, tablets, and other technological devices; therefore, they are likely familiar with utilising technology for academic and professional purposes. Coordinating innovation in the classroom enables professors to collaborate with students and disseminate course material in an environment where students feel comfortable and secure.

4. Personalisation and Connection: Through crossover courses, students can engage with their peers outside of class, facilitating mutual support and collaborative learning among all participants. This is essential for students as it allows them to direct their own learning and pursue their interests. When given the option to collaborate with peers, blended learning may enhance their comprehension of the subject matter.

5. Enhanced resource utilisation: Some persons prefer online learning versus in-person instruction. Multiple approaches and data sources are integrated in mixture learning. Consequently, students are likely to be aware of what is personally suitable for them. Individuals can concentrate on their preferred learning styles while conserving time and effort. Consequently, individuals can acquire vital skills and apply them promptly in real-world scenarios.

## 7 Further study

This research has limitations; therefore, additional investigation into the Ed-Tech sector in India is necessary.

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