E-Learning: A Double-Edged Sword? An Empirical Investigation

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***Abstract* - The COVID-19 pandemic has had a profound impact on the education sector worldwide, with schools and universities across the globe being forced to shut down. As a result, more than 1.2 billion students in 186 countries were affected by classroom closures. In response to this unprecedented situation, e-learning has emerged as a critical means of delivering education, with educators relying on digital platforms to continue teaching. Even as countries begin to recover from the pandemic, e-education remains a critical component of the education sector.**

This study aims to assess the extent to which educational institutions in India have adopted e-learning and to identify the challenges they face in delivering online education. The study is based on primary data collected through a Google form using a convenient sampling technique. The findings reveal that approximately 94% of educational institutions in India have adopted e-learning, and roughly 82% of students find it to be an engaging and effective mode of education.

The results also suggest that poor internet connectivity is the most significant challenge facing students in accessing e-learning. The study underscores the need for greater investment in digital infrastructure to improve the quality and accessibility of e-learning. Furthermore, the study highlights the importance of continued innovation and adaptation by educational institutions to ensure that e-learning remains an effective and sustainable mode of education in the post-pandemic world.

***Keywords:* e-Education, e-Learning, education sector, school, college, students, etc**

I. INTRODUCTION

Education is a critical element in nation-building and is widely considered to be the backbone of any country. As the well-known adage in India emphasizes, "Padhega India tabhi to badhega India" (India will only progress if it educates). However, the outbreak of the COVID-19 pandemic and the subsequent lockdowns have had a significant impact on the education sector, disrupting the traditional classroom-based learning system. To address this, there has been a sudden increase in the adoption of e-learning in the education sector.

E-learning has emerged as a highly effective option for both students and teachers in schools and colleges. This has been made possible by advancements in technology. Even as schools and colleges reopen, digital learning remains an integral part of the education system, with many institutions adopting a hybrid mode of learning that combines both online and offline teaching.

E-learning can be defined as the use of electronic media to facilitate learning, and specifically, the use of the internet to impart skills and knowledge. It is a mode of training, learning, or education that is delivered online through a computer or any other digital device. E-learning is also commonly referred to as online learning or internet-based learning.

Overall, the increased adoption of e-learning in the education sector underscores the importance of technology in modern education. The continued evolution and refinement of e-learning platforms will be critical in ensuring that students have access to high-quality education, regardless of their physical location or other limitations.

Source: Image from international webinar on 'Role of E-learning during Lockdown: Academic Challenges and the Road Ahead' conducted on Saturday, May 9 2020

It is widely recognized that learning should continue unabated, even during times of crisis. The advent of technology, which has facilitated and enabled e-learning, has played a crucial role in maintaining teaching and learning activities during these difficult times. Teachers, students, researchers, and corporate officials have all availed themselves of various digital platforms to engage in online learning, providing numerous advantages such as comfort, flexibility, and round-the-clock availability.

Innovations in e-education have brought about a revolution in the education sector, enabling adaptive and collaborative learning and significantly transforming the roles of both teachers and students. This has given rise to a new era of education, where traditional boundaries and limitations are being broken down, and new and exciting opportunities are emerging for all learners.

The advent of e-learning has enabled learners to access high-quality educational content and engage with other learners and instructors in real time, irrespective of geographical limitations. The advantages of e-learning are numerous, including the ability to access educational content from anywhere and at any time, the flexibility to learn at one's own pace, and the ability to engage in collaborative learning activities with other learners from around the world.

Overall, e-learning has brought about a paradigm shift in the education sector, transforming the way we teach and learn. The continued evolution of e-learning platforms and the integration of emerging technologies will be critical in ensuring that learners have access to high-quality education and training, regardless of their physical location or other limitations.

II. REVIEW OF LITERATURE

The review of the literature for our study is as follows-

The ongoing COVID-19 pandemic has had a profound impact on the education sector, prompting a shift towards digital technologies and e-learning. Praveen Parameswar, CEO of Lifology, notes that the crisis will change the dimensions of education and the way we spend time on it and that the informed and productive use of digital media will be the game changer for families in the future.

Amita, Dr. (2020) reports that online education tools have helped to compensate for the loss of classroom studies during the lockdown period, with a survey indicating that almost 60% to 80% of the syllabus has been covered using online teaching methods. Similarly, Radha, R., Mahalakshmi, K., and Saravanakumar, Ar. (2020) highlight that e-learning has emerged as an upcoming trend worldwide, offering a versatile and accessible method of teaching and learning that is well-suited to the needs of students amidst the COVID-19 lockdown period.

Khan, M., and Raad, Bareq. (2020) further reinforce the view that digital platforms and e-learning have been essential in ensuring that learning has not stopped despite the closure of schools, colleges, and universities. These findings are consistent with a growing body of research demonstrating the effectiveness of online education in enhancing learning outcomes and enabling learners to access educational content and collaborate with others in real-time.

In addition, a study by Arancibia et al. (2021) found that e-learning has enabled a more flexible and personalized approach to education, allowing learners to tailor their learning experience to their specific needs and preferences. Similarly, a study by Alqurashi and Alshumaimeri (2020) suggests that e-learning has the potential to enhance the engagement and motivation of learners, while also improving their knowledge retention and critical thinking skills.

Overall, the literature suggests that e-learning has emerged as a vital tool for maintaining continuity in education during the COVID-19 pandemic, and that it has the potential to transform the way we teach and learn in the future. As such, further research is needed to explore the effectiveness of different e-learning platforms and technologies, as well as their impact on student engagement, motivation, and learning outcomes.

III. OBJECTIVES

1. To find out whether educational institutions have adopted e-learning in India.
2. To find out the ratio of the Hybrid mode of Teaching (online and offline) and Offline Mode only at the present time.
3. To identify whether the students are finding e-learning interesting.
4. To know the difficulties faced by students due to online learning.

IV. RESEARCH METHODOLOGY

To accomplish the aforementioned research objectives, primary data was collected through a Google Form utilizing a random sampling technique. The survey questionnaire was designed to be simple and precise, comprising three questions for each objective. The Google Form was segmented into four categories, namely class 9th to 12th students, undergraduate students, post-graduate students, and PhD scholars. The survey remained open for a period of 25 days, from 17th February to 14th March 2023, during which 654 responses were gathered. Basic statistical tools such as percentages and scores were employed for data analysis. This research methodology ensures reliability and validity in the results and provides a comprehensive insight into the research objectives.In order to achieve the above mentioned objectives, primary data was collected using Google Form. This form was kept very simple and precise consisting of only five questions i.e. one question for each of the objective ofthe survey. To make thesurvey results reliable and representative the students from all the majors streams of higher education were included. For making the study more useful three broad groups of respondents were created. These include Commerce and Management, Arts and SocialSciences and Scienceand Technology. The scope of the survey was restricted to Haryana and Punjab, the two most go-ahead states of India. Further, attempt was made to include students from Government institutions, private institution/colleges,stateuniversitiesandprivateuniversities.Intotal, questionnaire was filled by 882 students, which is avery encouraging response.Further, the google form remained open for submission for only two days from April, 22 to 23, 2020.

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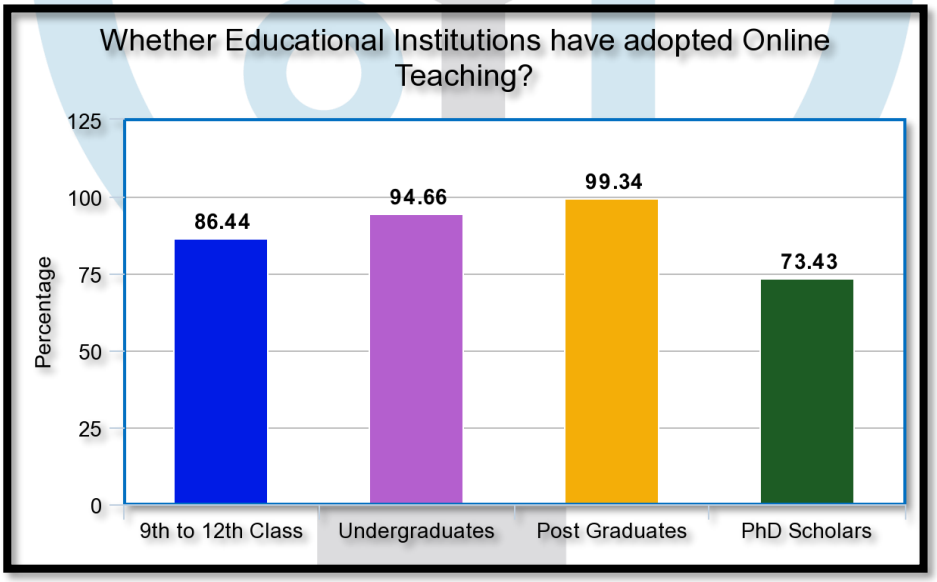
V. FINDINGS

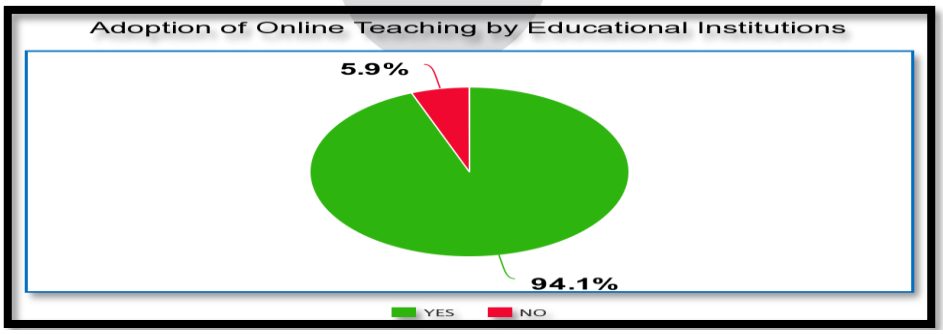
Description of Survey Results

Objective 1: To find out whether educational institutions have adopted e-learning in India.

The first objective of this study was to find out whether the educational institutions have adopted e- teaching methods. The response is shown in the table and chart below. Approximately 94% of the students said that their teachers adopted e-teaching. 6% responded 'No'.

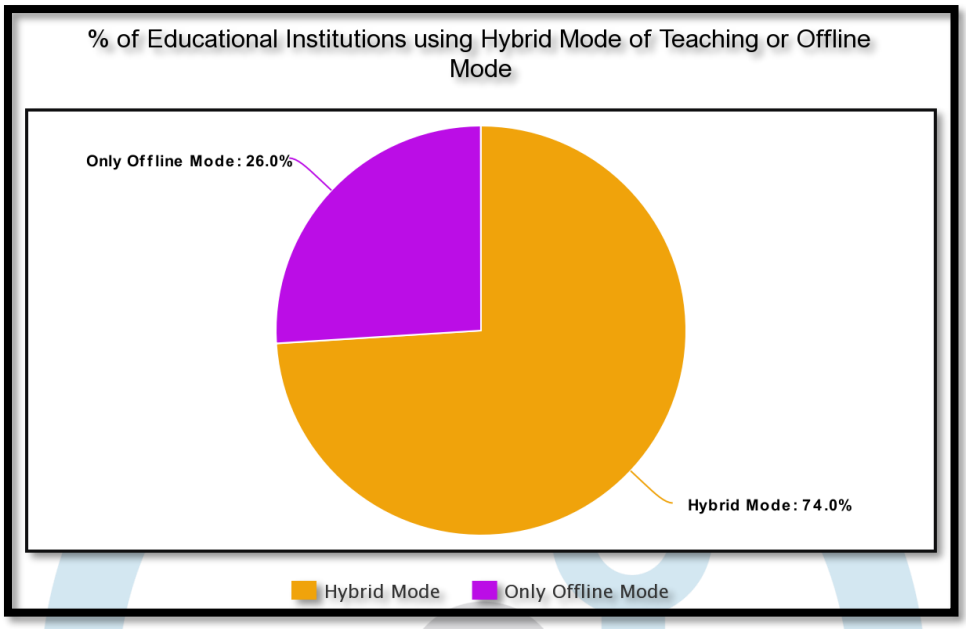
Categories	**Yes**	**No**	**Total**
9th – 12th Class	51	08	59
Undergraduate Class	213	12	225
Post Graduate Class	304	02	306
PhD Scholars	47	17	64
Total	**615**	**39**	**654**





Objective 2: To find out the ratio of Hybrid mode of Teaching (online and offline) and Offline Mode only at present time.

For the second objective, ratio was found out for the present scenario

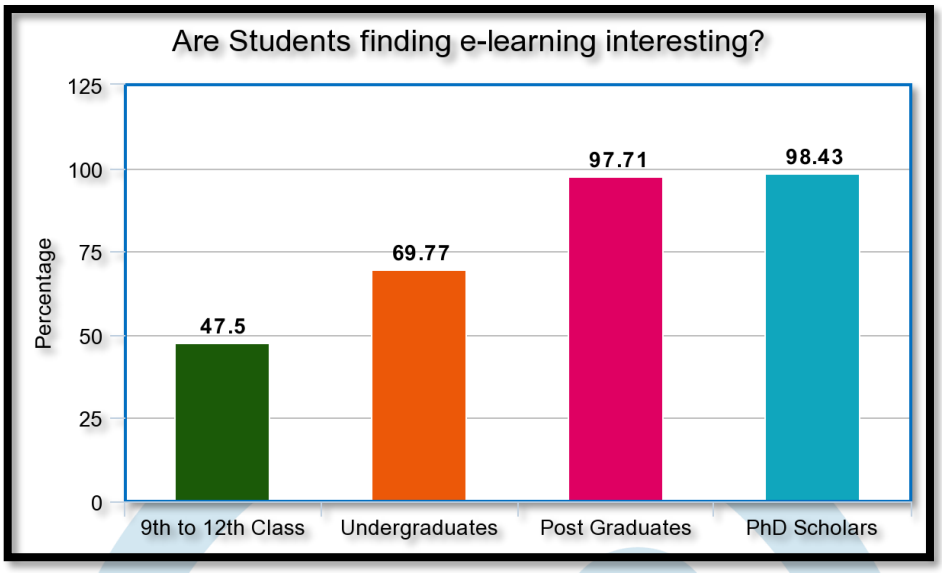


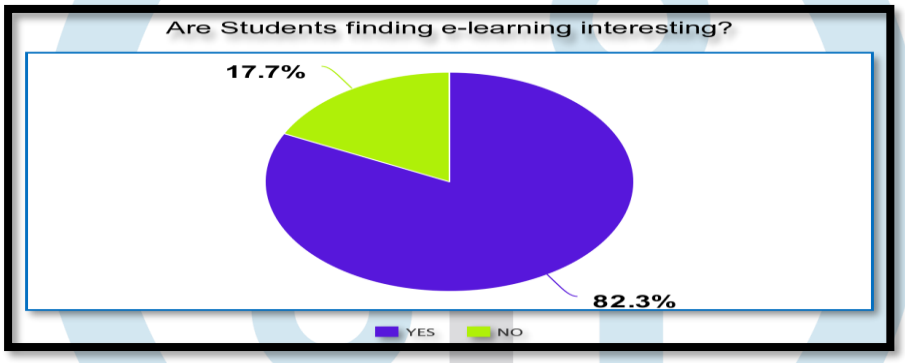
Hence it can be seen that 74% of educational institutions are using both online and offline mode of teaching at present (hybrid mode) and 26% still uses offline mode only.

Objective 3: To identify whether the students are finding e-learning interesting.

For the third objective, a simple question (Yes/ No) was asked to find out the interest of students towards e-learning. The question asked was 'Are you finding e-learning interesting?'
Approximately 82% students (538 out of 654) answered 'Yes' and 18% answered 'No' (116 out of 654). Also, the PhD students are finding e-learning most interesting (98.43%), followed by Post Graduate students (97.71%), then undergraduate students (69.77%) and the least is of class 9th to 12th students 47.5%).

Categories	YES	NO	Total
9th to 12th Class	19	40	59
Undergraduate students	157	68	225
Post Graduate Students	299	07	306
PhD Scholars	63	01	64
Total	538	116	654



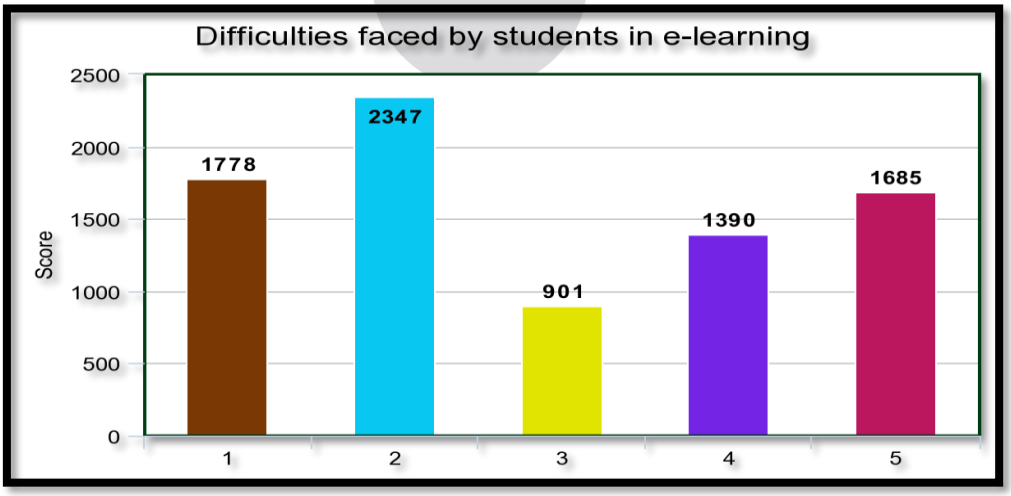


Objective 4: To know the difficulties faced by students due to online learning.

For the fourth objective, an attempt was made to find out the difficulties faced by students in e-learning. It was categorized as follows –

1. Non-Availability of e-learning resources like laptops or desktops at homes
2. Poor Internet connectivity problem
3. Lack of adequate technical skills
4. Problem of the high cost of the internet and usage of data
5. Nearby disturbances like noise

The responses to these questions were obtained on a 5-point Likert Scale. These were converted into 'scores' by multiplying the number of responses by a weight assigned. The weight was given from 1 to 5 to the responses very low to very high respectively. The table shows the highest score towards 'Poor internet connectivity problem' followed by 'Non-availability/affordability of adequate e-resources'. Nearby disturbances like noise, the high cost of the internet and lack of adequate technical skills are also some of the problems faced by the students.



S. No.	Type of Difficulty	Very Low	Low	Moderate	High	Very High	Score
1	Non-Availability of resources like /Laptop/Desktop	192	100	167	90	105	1778
2	Poor internet connectivity problem	75	88	83	193	215	2347
3	Lack of adequate technical skills	201	166	124	75	88	901
4	The problem of high cost of the internet due to heavy usage of data	286	167	84	67	50	1390
5	Nearby disturbances like noise	257	93	82	114	108	1685

CONCLUSION

The Covid-19 pandemic has presented numerous challenges to the education sector, forcing schools and colleges to close down and leaving more than a billion students worldwide out of classrooms. However, the study has demonstrated that the sector has successfully adapted to the circumstances, with e-learning emerging as the most popular mode of teaching. The adoption of digital teaching methods has been made possible only through the use of technology. Despite the challenges of poor internet connectivity faced by some students, the overwhelming interest in e-learning is evidence of the potential of online education. The education system is now embracing a hybrid mode of teaching, combining online and offline methods to provide an effective learning experience. In conclusion, it can be said that learning is a lifelong process, and the success of e-learning during the pandemic has shown that it is possible to overcome obstacles and embrace new modes of teaching to enhance the education sector.

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