



11. The Role of Machine Learning and Artificial Intelligence for Impact on Education during Covid-19

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ABSTRACT:

There are several uses for machine learning in prediction, which is a novel method. Using this method for the COVID-19 pandemic will help identify people at high risk, as well as their death rates and other irregularities. Using this information, we can better comprehend the virus's nature and anticipate its upcoming steps. In many aspects, artificial intelligence (AI) apps offer solutions to the ever-increasing modern challenges that make it more difficult to obtain an education and learn new things. A wide range of educational systems have been adversely affected by the expansion of the anti-education movement. Students and teachers alike face new challenges when a school is completely shut down, which is likely to lead to the transfer of an offline education system into an online one. Students' perceptions of online learning as more traumatic and negatively impacting their general well-being and social interactions are also discussed in this section on managing online teaching approaches. A new teaching method has made it possible for students to benefit from an online classroom experience that is as good as or better than a single online classroom experience. The impact on education that will be felt in the year of Covid-19 will be discussed in the context of machine learning and artificial intelligence.

KEYWORDS: Machine Learning, Artificial Intelligence, Education, Covid-19, Online Classes, e-Learning.

Introduction:

Educating the masses is an important of our society's mission. Almost everything else is based on it, and the impact it has is massive. Education is a basic human right that should be available to everyone, regardless of their economic situation. At COVID-19, many researchers have expressed an interest in further investigating the education sector's difficulties. Even in the absence of pandemics, society still faces a number of challenges. Concerns about education, the difficulty of getting students into classrooms, and financial

troubles are just a few examples of the ongoing issues. However, the focus of this study is on a technologically-provided solution in the form of artificial intelligence (AI).

According to initial reports, COVID-19 has had a larger impact on education than anyone had anticipated; this trend is expected to continue. Face-to-face instruction has been phased out by schools, organisations, and even colleges. Regular schoolwork, including examinations, cannot be resumed during a COVID-19 as stated in many Indian Ministry of Human Resource Development circulars. An online class should be implemented for the entire student body. There is an urgent need for new teaching and evaluation methods. With the COVID-19 [1] epidemic, now is a good time to begin laying the groundwork for online learning. [2].

As the COVID-19 epidemic spreads, the education sector is projected to be negatively affected. In any case, as the virus continues to spread, it is predicted to have a beneficial effect on the market. The implementation of lockdowns boosted the demand for e-learning in the classrooms. Because of this, artificial intelligence (AI) now has more application possibilities in education. [3]

Market growth is being attributed in large part to an increased focus on individualized instruction. Machine learning technologies are increasingly being used by institutions to collect student data, get actionable insights into student performance, and make informed judgments. [4]

Teachers can use machine learning algorithms to identify areas where their pupils are having difficulty and then present them with resources that are specifically tailored to their needs. It's because of this growing demand that several software companies are now offering AI-enabled solutions that can assist teachers in creating unique educational materials. There are a number of variables that are boosting the growth of the worldwide AI market in education, including these. [5]

As predicted by Technavio, AI applications would have a substantial impact on the market and contribute significantly to its growth over the forecast period. Other key market trends and factors are also examined in this report, which will have an impact on market growth between 2021 and 2025. [6]

Artificial Intelligence Market in the Education Sector: Significant scope of AI applications:

It has become increasingly difficult for students and teachers to interact because of the fast growth in class numbers. Traditional educational processes, however, can benefit from the use of artificial intelligence (AI). Schools and universities are being offered technologies that allow virtual programmes or virtual human beings to teach. [7]

Review of Literature:

An artificial intelligence (AI) refers to a machine's capacity for intelligence, as opposed to a human's ability to demonstrate such intelligence. Applied Intelligence (AI). When it

comes to human or animal intelligence, the presence of consciousness and emotions distinguishes it from machine intelligence.

"To make a machine behave in ways that would be regarded as intelligent if a human were to be so behaving," was the definition given by John McCarthy in 1955 [8]. [9] The idea that computers could one day think like humans was popularised by Turing in the 1950s. According to this futurist, automated machines may one day be able to perform computations that humans could never rationally complete.

The UNESCO initiative on Artificial Intelligence and the Futures of Learning is based on the impending UNESCO global study, reimagining our futures together: Rethinking the Future of Education. A new educational social contract will be unveiled in November 2021.

The Beijing Consensus on AI and Education and the UNESCO Strategy on Technological Innovation in Education will guide its implementation (2021-2025). [10]

Global developments in online college education were examined by a paper [11]. It's been a decade since the research stated that higher education has been on a decline.

Higher education forms and institutions have seen an increase in online enrollment over this time period. Since universities are launching more online programmes, the rivalry is increasing. According to the findings, 70% of the schools and universities surveyed plan to introduce one to four new online programmes in the next three years.

[12] COVID-19's impact on education is analysed from a variety of angles, including schools, families, and assessments; it also proposes a variety of solutions to the identified problems.

The information students receive from home and their ties to family are therefore more important from the perspective of the family. Studying alone can be difficult because students tend to become disorganized and lose track of their tasks.

Artificial Intelligence and the Internet of Things (AI and IoT) are critical to creating adaptable and resource-rich platforms that students can use, as discussed in Paper [13]. You can save time and increase productivity by using quick communication channels, share information in various formats from various sources and enhance learning performance by providing multiple data presentation options. You can also increase interactivity between students and teachers and improve the interoperability of different parts by using smart education.

Research Methodology:

Due to a possible outbreak of a disease, a schooling institution has already been in turmoil since March. At this point in the academic year, there is some anxiety about completing the curriculum. As a result, a wide range of online courses are available, including Zoom, Google Class, Webex Meet, Microsoft Meet, Teams, Meeting, and so on.

Objective:

- The origin of deadly coronaviruses and their rise.
- To what extent did the deadly virus have a cascading effect on Indian education
- To reveal the various modes of online teaching and learning used during the COVID-19 pandemic.
- Teachers and students in the pandemic of COVID-19 will be surveyed about their experiences with online education.
- To identify if teachers can be replaced by virtual learning.
- To find out how teachers and students are coping with the COVID-19 pandemic and the transition to online teaching and learning.

Result and Discussion:

Statistics indicate that passive teaching techniques, in which students do not interact with their teachers, are the most common.

We found additional data, which we've shown graphically in the graph below. [14]

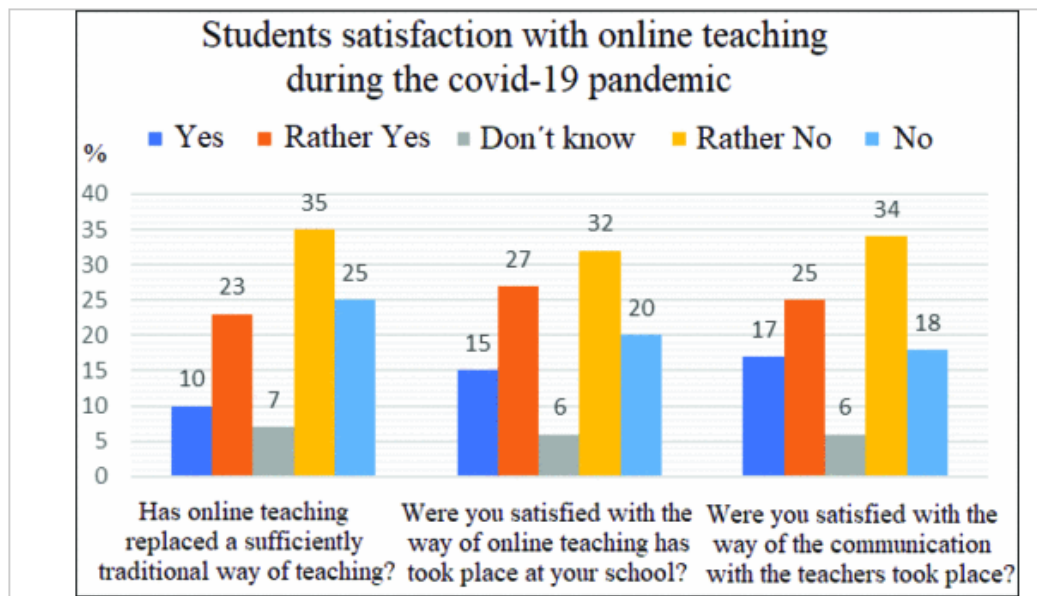


Fig. 1: Student satisfaction with online learning

Students and teachers' numbers grew steadily during the epidemic in Fig 2. 230 teachers and 2216 students were enrolled in 2019, but the number of teachers increased by nearly a dozen fold to 2647 in 2020, while the number of students increased by nearly a ninth of a factor to 19,796. [15]

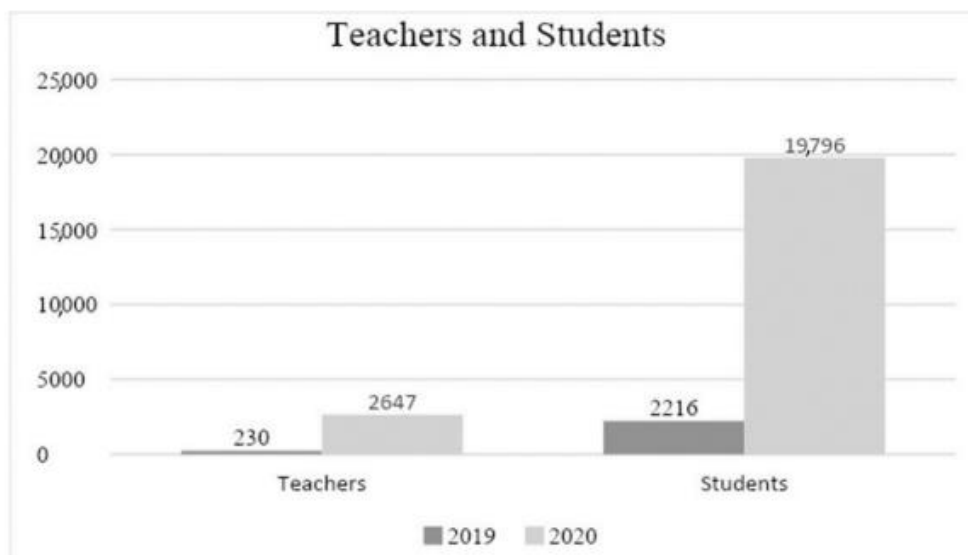


Figure 2: shows the number of teachers and students who have signed up for the app in 2019 and 2020

Table 1 shows the wide range of online teaching and learning modes used by teachers and students during the lockdown period of COVID-19. After the government of India imposed a lockdown, Mizoram University decided to create its own LMS. After all teachers had logged on and submitted the necessary resources, they were also required to answer any questions that the students might have in the forum. [16]

Sr. No.	Online teaching and learning methods	% of teachers using online teaching modes	% of students using online learning modes
1.	Mizoram University-Learning Management System (MZU-LMS)	100	60
2.	Google Classroom	32	20
3.	Zoom/Cisco WebEx/Google Meet/Skype	45	15
4.	Webinar	25	35
5.	YouTube Videos	50	28
6.	YouTube/Facebook Streaming	6	18
7.	WhatsApp/Telegram	100	100
8.	Telephonic Conversation	87	23
9.	Email	100	100
10.	Swayam Prabha educational DTH channels/Zonet Cable TV	11	27

Table 1. Teachers and students use a variety of online teaching modes.

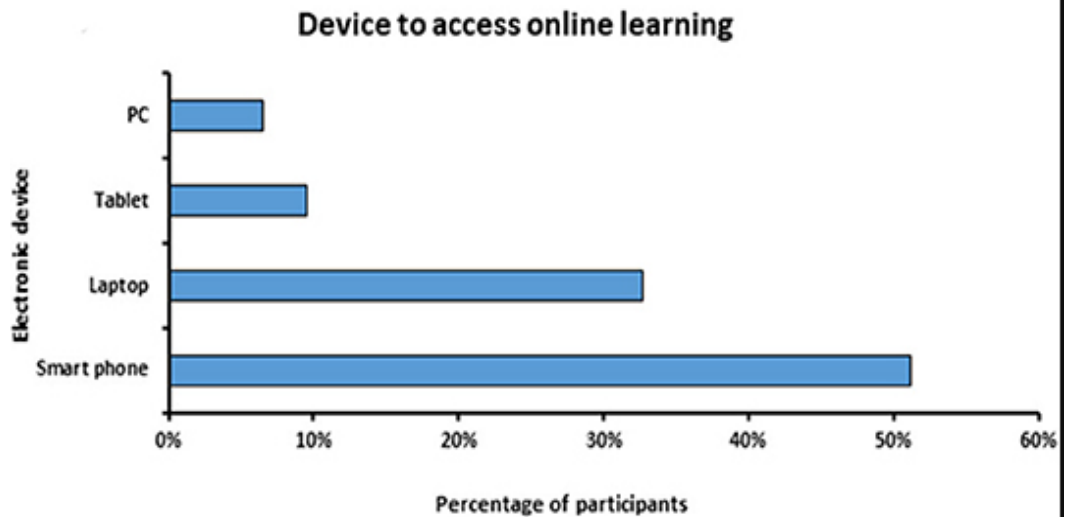


Fig. 3: A diagram showing the device participants use to access online materials.

Data collected shows that students used a variety of electronic devices to do their online studying. Next came laptops and tablets (each with 9.6%) and personal computers (the least popular device), in that order. [17]

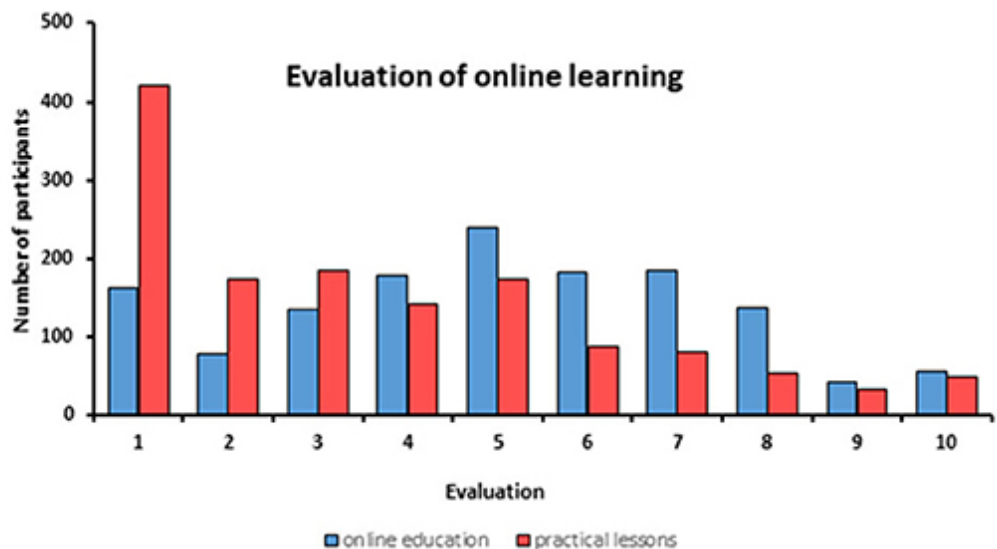


Fig. 4: Evaluation of online learning.

The overall mean score for online education was 5.1 ± 2.4 , while the overall mean score for the practical components was 3.6 ± 2.6 . About 56.9% of participants gave an overall rating of 1–5 on a scale of 1–10, while 78.4% of participants in practical lessons gave an overall rating of 1–5 on a scale of 1–10. [18]

Conclusion:

Artificial intelligence (AI) should be instantly recognizable to the general public due to its widespread use in modern society. It's time for schools to incorporate Artificial Intelligence, Machine Learning, and Natural Language Processing into their regular courses. Students should be well-versed in AI approaches in order to remain competitive in the post-COVID environment. It will be critical for pandemic education and human problem solving to use AI and ML in pandemic education as long as the future citizens and machines are dependent on disease outbreaks, future learning machinery and data patterns and a machine Intelligence Machine For many, the lack of understanding of AI and ML allows them to focus more on trials and blunders.

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