Online Teaching And Learning- A Perspective

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Abstract

"Online class/Online learning", these became our everyday words as a result of the COVID-19 pandemic crisis that emerged in 2019.

THE PANDEMIC because of COVID-19 has affected nearly all aspects of life and education system was hit hard because of that, hence a lot of effort has been put to implement more and more virtual platforms for online classes, meetings, etc.,

Medical education has also been affected especially because of the needs for hands on education specifically in clinical setting for last two years

E-learning has become a necessary feature in all educational establishments such as schools, colleges and universities. Students are required to adapt with the online learning method to ensure it is carried out as usual even though they have difficulties in various ways[1].

This forced transition to online learning compels us to understand students experience with online learning.

The impact because of the prolonged lock down and the pandemic fatigue added with the online classes on mental health of students is a main concern

So, in the below content we are going to understand about the relevant factors that intervene in the online education experience and its effect on students mental health[1].

Keywords: *Pandemic, COVID-19, On-line learning, mental health, stress, anxiety, fatigue, methods of E-learning, platforms, internet, zoom.*

I.   Introduction:

Since its emergence, COVID-19 has been declared a public health crisis threatening the globe because of the ease of transmission of the virus, the wide range of symptoms, and the lethal complications. The SARS-CoV-2 virus originated in bats and has so far resulted in more than 3 million deaths worldwide [1].

It started late 2019 in Wuhan, Hubei province, China, and has since reached all countries around the globe. The World Health Organization (WHO) immediately announced the situation as a global pandemic on March 11, 2020

Most countries went into complete lockdown for various periods of time aiming to control the spread of the virus. Moreover, many businesses went out of business due to changes in the economic and social life since the beginning of the pandemic [1].

The COVID-19 pandemic has posed an unprecedented challenge in education, leading to the suspension of face-to-face teaching. Due to imposing lockdown for a long time, the physical access to the classroom has been restricted. About 1.5 billion school going, and university students have been suffering because of institutional closure due to COVID-19 outbreak.

Significant efforts are being made by governments and educational institutions at all levels   to find practical solutions in online learning amid the COVID-19 outbreak. This action helps parents to accompany their child's education at home and at least reduce parents' concerns about the quality of online learning. A study shows that when students are not at school, for example, holidays or study at home, they are physically less active and have a longer time to use mobile phones, and so their use will also feel saturated, even with severe, mild stress [3].

The situation will get worse if they are prohibited from leaving the house without outdoor activities and lack of interaction with their peers. Bored, stressed afraid of being exposed to viruses, the spread of false information and worsening family financial conditions can occur. The burden of online lecture tasks is one of the contributing factors to student's stress levels, which requires them to use online media that they have just learned and must immediately understand. This is reinforced by research that found that public health emergencies can have many psychological effects on students, which can be expressed in the form of anxiety, fear[3].

Although studies show positive working-from-home experiences, education wise student's experience is generally described as disrupted and leading to feelings of insecurity, anxiety, and hopelessness. So let's dive into knowing online learning, it is necessities and it is impact on student's mental health in detail.

II.   What Is E-Learning:

Online learning (also called E-learning) is a type of online and distance learning that uses the Internet and new digital technologies, intending to improve learning processes. This type of teaching allows learners to be able to train remotely and have access to different educational content 24/7. The constraints are lessened thanks to the emergence of the Web and the various related technologies. The transmission is done quickly and easily, with learners accessing the courses whether they are in the comfort of their home or workplace [5].

Even though E-learning was introduced in the1990s with the rise of internet and technology and was used by many people all over the world, it became a more casual and a well known thing as the unfortunate COVID -19 halted the common worldly functions like education.

Like every inventions in the history, if the inventions provides its advantages, the disadvantages will be given free successively.

III.   How Does E-Learning Work:

E-learning enables learners and trainers **to free themselves from the obligation to meet in the same place and at the same time** so that knowledge can be passed on. The learning experience in distance learning is unique because the classes are virtual, the training modules are accessible online and the learning content is digitised.

It involves self-paced learning, either CD-ROM-based, Network-based, Intranet-based or Internet-based. It may include access to instructors through online bulletin boards, online discussion groups and e-mail. Or, it may be totally self-contained with links to referring materials in place of a live instructor [5].

IV.   Modern E-Learning

Today, when people say "eLearning", they're referring to training on any digital device. Watching an educational video, reading an interesting article, or taking a quiz — all that is E-LEARNING. Comparing eLearning to traditional education methods is like comparing e-book formats to paper books.

Just like digital texts can't replace the authenticity of a real book, eLearning can't replace full-scale education. However, it is always available as long as you have your digital device with you, and thus, it's more convenient. Convenience is one of the main reasons people love eLearning. Another reason is that you can customize your learning experience with other novelties, like augmented reality and virtual reality (people love new technologies!). For example, with VR courses, warehouse and construction site workers receive safety training, and medical students learn how to locate bones and blood vessels. We use eLearning daily to develop ourselves as individuals. We read articles, watch YouTube videos, and play games to exercise our brains on our smartphones. Businesses, from small start-ups to enterprises, also utilize eLearning to train employees and help with internal processes[5].

Methods adopted in online learning:

Lately, the Instructional Design model called ADDIE Model which has five phases: Analysis, Design, Develop, Implementation, and Evaluation is being used in eLearning

There are many Content Types focused on eLearning. Those are totally based on the need analysis and the type of learners. Here are the most common Learning Content Types:

1. Learner-centred content.
   eLearning curriculum should be relevant and specific to learner's needs, roles and responsibilities in professional life. This kind of content like skills, knowledge and all kind of learning media provided to keep the focus on learner's end.
2. Engaging content
   Instructional methods and techniques should be used creatively to develop an engaging and motivating learning experience. It depends upon developing the storyboard that has to be based on a very engaging way of learning programs.
3. Interactive content.
   Frequent learner interaction is needed to sustain attention and promote learning. Scenario based learning is a good example for this kind of learning media.
4. Personalization.
   Self-paced courses should be customizable to reflect learner's interests and needs; in instructor-led courses, tutors and facilitators should be able to follow the learners' progress and performance individually.

Another classification of methods in online learning are Synchronous and Asynchronous Learning.
Synchronous Learning.
Synchronous events take place in real time. Synchronous communication between two people requires them to both be present at a given time. Examples of Synchronous Learning are chat and IM, video and audio conference, live webcasting, application sharing, whiteboard, polling, and virtual classrooms. This I will not cover in detail as these are basic methods that most of the organizations are already familiar with.

Asynchronous Learning.
Asynchronous events are time-independent. A self-paced course is an example of Asynchronous Learning because online learning takes place at any time. E-mail or discussion forums are examples of asynchronous communication tools. In such cases, students ideally complete the course at their own pace, by using a Learning Platform like an LMS. Examples of Asynchronous Learning are Self-paced (SCORM), Audio/Video, E-mail, Discussion forum, Wiki/Blog, Webcasting/Conferencing, CBT and WBT, Simulations, Game-based learning [6].

V. What Online Platforms Are Available:
From early 2020 to till today the school, university communities are vastly using two types of platforms, they are:
- Virtual communicative platforms
- Classroom works management platform

Virtual communicative platforms:
Communication is key when it comes to ensuring students receive the education they deserve. Interactive video lectures help teachers and students communicate effectively in real time.

Education platforms encourage students to:
- Collaborate
- Communicate
- Share videos, photos and homework assignments

The platforms that are used in this category are:
1. Flip Grid
Flip Grid is a conversation-starter enabling students and teachers to share videos about a relevant subject.

2. Zoom
Zoom became the #1 choice for meetings and webinars for its ease and functionality. So the school and university communities also started using it.

3. Slack
Slack is an instant messaging tool that helps you and your students communicate instantly.

4.Webex
It is similar to the zoom application.

5. Bloomz
Bloomz is a wonderful app that opens communication between parents and teachers.

6. Class Dojo
Parents can join their kids in class through any device with this platform.

7. **Microsoft Teams**
Classrooms are a true team environment when teachers and students can swap thoughts and ideas.

Classroom works management platforms:
Classroom management platforms are **timesaving tools that make learning run smoothly.** These ingenious platforms help you time tasks, manage and improve student's behaviour and create a respectful and supportive environment.

The platforms that are used in this category are:

1. Google Classroom

Google Classroom requires the use of a Gmail account to access Classrooms. This platform is fantastic for easy communication, teamwork and sharing homework files.

2. Buncee

Buncee is a fun and simple tool that helps students and teachers create course materials, presentations and stories.

3. EdModo

As a global learning management system (LMS), EdModo is a collaborative platform that connects teachers, students and parents.

4. Edulastic

As a valuable online education tool, Edulastic's high standards help you administer assessments, help students and track their progress.

5. Class Max

Class Max's online education tool shows teachers exactly how to set up the system, so no guessing required. You can create seating charts, monitor behaviour and track student progress[7].

Requirements for online classes:
We will need to have access to the following software/hardware:
- Computer.
- Working microphone and webcam (can be combined or included with computer hardware such as in a laptop)
- Speakers or headphones
- High-Speed Internet Connection (A **high speed internet connection with speeds of 1.5 mbps or higher** is recommended for online courses to ensure that you can access all of the course materials and resources, particularly large file sizes as with streaming video.)
- Mobile devices (android or Ios).

Technology requirements for individual courses may vary and your course may require more hardware or software. See the course syllabus or contact the instructor for additional technology requirements[10].

Duration and length of teaching:
The time spent teaching is made up of the time spent communicating with students online and the time spent during the scheduled meeting times for the in-class section. Specifically the time spent teaching online is made up of one-on-one email, phone conversations, discussion groups, chatroom questions and answers, and help in my office. This communication has been found to be one of the most time consuming parts of teaching an online course.

These are the guidelines, prepared by the National Council of Educational Research and Training (NCERT), are only advisory in nature, and State governments have been asked to build on them and formulate their own rules, based on local needs, that is: Schools can hold live online classes for a maximum of 1.5 hours per day for Classes 1-8, and three hours per day for Classes 9-12, according to the Pragyata guidelines for digital education, released by the Ministry of Human Resource Development (MHRD).

For kindergarten, nursery and pre-school, only 30 minutes of screen time per day for interacting with parents is recommended [15].

Colleges be conducting Classes to complete the portions according to the guidelines issued by the university they are based on , the lectures can take place anytime within the 8 to 5 acadeic timings.

One of the factors that affects the duration And length of online classes are, several virtual communicative applications applying charges to conduct a meeting or a class or they just give 45 minutes of free usage but if you have to organize Classes for more than 45 minutes or conduct class continuously it will require to pay the applications[15].

The challenges of online learning
There are, however, challenges to overcome. Some students without reliable internet access and/or technology struggle to participate in digital learning; this gap is seen across countries and between income brackets within countries [18].

VI.   Advantage Of Online Classes:
Besides uninterrupted learning and setting a routine for students, the other advantages of virtual classroom are:

Easy Access Through Devices
Virtual classrooms are easy to access as the student only needs an internet connection with good speed and a computer, tablet or smartphone to attend class.

Learn From The Convenience Of Place And Time
Since online classes allow for archiving lessons as well as recording the class, students have the option of revisiting the lesson at any time of their convenience.

Around The Clock Learning
Virtual classroom solutions have an option for messaging the teachers and lecturers. This option allows the students to interact with their teachers at any time, to clear doubts, or ask questions.

Opportunity to Learn New Technology
Virtual classroom solutions such as Google Meet, Big Blue Button, Zoom etc. gives an opportunity for the students to explore and learn new digital tools. From creating PowerPoint for assignments to researching online, one of the biggest advantages of online classrooms is the digital proficiency and skill that the students are learning.

Interaction With Friends And Peers
Due to the strict lockdown and rules regarding social distancing, many students are struggling with isolation and feelings of loneliness.

Can be Personalized
In the virtual classroom, the content can be personalized to meet the learning need and method of the students. For instance, visual learners can be directed toward learning videos.

Improved Attendance
Since the students no longer have to travel to attend class, there is a considerable improvement in the attendance of students.

Trackable Learning
The performance of students is easily traced in online classes. In virtual classes, the data of every student including attendance records, test scores, exam results in stored online. This enables teachers to track students and understanding their learning curve easily[17].

VII.   Disadvantages Of Online Classes:
The making of socially awkward people.
While the convenience and cost-effectiveness of online education are working in favour, zero social interaction can be a problem. Not physically connecting to classmates or teachers can leave the kid unaware of the advantages of physically attending class. The students are becoming more comfortable in their cocoon. This could eventually lead to social awkwardness and a lack of the ability to interact with people in a normal way.

Budget concerns!
The biggest disadvantage faced by the parents was the massive expense of buying laptops. Many not so well-to-do parents had to spend savings to buy laptops as it became mandatory for the students to be able to have classes with ease.

Technical Issues at All Times.
Internet issues, laptops not working and no electricity are just a few problems to name. These are some of the problems that students and teachers often face and are helpless. There are no such solutions for it.

Attention Span Keeps Fluctuating!
You cannot deny the school students are capable of taking advantage of the whole situation and being less attentive during the class.

Health Issues:

Many parents are worried about their child's health as it is unhealthy to sit for hours in front of a computer screen. Looking at the screen for too long can also damage their eyesight. Not only that, back problems due to incorrect sitting positions may arise.

Isolation:

While digital education has its perks many students feel a sense of isolation and become depressed. This is due to little to no human contact and socializing with peers. Both students and teachers alike are prone to loneliness in virtual learning.

Limited:

Digital learning does not apply to all disciplines and subjects. Areas that require practicals like engineering, medical science, and other STEM subjects cannot be implemented fully with digital classes. Moreover, some practical cannot be learned virtually.

Lack of Good Internet connection:

As we all know that online classes/learning are more flexible and accessible from anywhere conveniently with the help of a good internet connection. If you are failed to connect your phone or computer with good internet connectivity then you may miss a lot of important stuff because of buffering. Also, for a good internet connection parents need to spend money on a monthly or yearly basis which is a disadvantage for poor and middle-class families.

Prevention of cheating is difficult:

Unlike traditional learning where teachers can personally monitor students. Digital Online Classes make it quite difficult for teachers to assess their students during exams. The teachers will have no idea if students cheat on the test or not as they are not physically there to assess them[17].

What does this mean for the future of Learning:

While some believe that the unplanned and rapid move to online learning – with no training, insufficient bandwidth, and little preparation – will result in a poor user experience that is unconducive to sustained growth, others believe that a new hybrid model of education will emerge, with significant benefits. "I believe that the integration of information technology in education will be further accelerated and that online education will eventually become an integral component of school education, "says Wang Tao, Vice President of Tencent Cloud and Vice President of Tencent Education.

Effects of online classes on physical health
Eyesight problems

Increased screen time has increased the strain on the eyes, resulting in major headaches. This was applicable not only to the students but also to teachers.

Lack of classroom ethics

The classroom ethics have been compromised to great lengths. The posture, regularity, lack of routine, attentiveness has all resulted in health hazards. Constant sitting has caused weight concerns as well. No physical activity has made the students restless and frustrated. This too took a toll on the eating habits, thus resulting in damages to the physical health.

Bad ergonomics

Human factors and ergonomics is the application of psychological and physiological principles to the engineering and design of products, processes, and systems.

Studying online has resulted in poor/bad ergonomics, thus resulting in a lot of issues as regards back pain and fibromyalgia pains.

Lack of physical activities

The lack of physical activities has caused children to become obese. Thanks to binge eating and watching, it's only gotten worse.
Muscle spasms, muscle rigidity, and lack of calcium, etc are all based on lack of physical activity.

Lack of Vitamin D
Online Education surprisingly has resulted in a lack of Vitamin D. Lack of sunlight, poor diet, and exercise have resulted in more problems than one could anticipate.

Calcium deficiency
As weird as it sounds, the lack of physical activity and calcium has resulted in trivial injuries, thus resulting in extensive injuries further[20].

Online learning impact on mental health of students:
Online classes affect the mental health of students, parents, and even teachers. For individuals who have existing mental health problems, it may worsen. Imagine how is it like for a kid to spend hours every day in front of Zoom without social interaction and playtime with their friends. Parents are now acting like teachers and are more involved in their children's schoolwork. Teachers and professors have increased workloads and are pressured to deliver quality learning without face-to-face classes[22].
Some of the common mental disturbances the students go through because of the ongoing pandemic of online learning.

Zoom Fatigue
There is this newly coined term during the COVID era, called "Zoom Fatigue". The term Zoom Fatigue refers to feelings of exhaustion after long Zoom classes or video conference calls. It may not be a formal diagnosis, but Zoom fatigue does exist especially in virtual learning. During an online class, there's information overload plus facing the screen for prolonged periods is mentally draining. It's more challenging for students to learn new information, and even though they just sit in front of the computer, they feel like they are physically tired[24].

Lack of interest
Humans are social animals, and the most introverted ones also need to see faces and have human interactions once in a while. The children have grown to lose interest in their classes. Most of them switch off the camera and go about their other activities. The lethargy has inculcated the loss of interest in not only the studies but everything overall.
The pressure of after-school homework and assignments has triggered a great toll on the mental health and mood[22].

Stress
The concentration levels of students dropped in online learning as the eye meanders elsewhere on the screen. This in response made it difficult for most students to keep up with the teachings. The pressure to concentrate and produce the required results has resulted in a great amount of stress . Tasks, assignments, and homework slacked[26].
Most children were seen lagging behind and succumbing to the pressure. The mental state of the children was fragile and tampered with.

Lack of motivation
Motivation is one of the important aspects in every individual. It will help a person to perform better with determination. many students around the world had to transfer from face-to-face teaching to an online learning system in the middle of the semester due to the COVID-19 pandemic. Which shook their built up self-efficacy, objective theory, knowledge theories, preference theory, the theory of self-determination etc. For that semester or academic year, which impaired the students motivation for learning and future ahead of them[27].

Anxiety:
Anxiety is a dynamic emotional state of tension, uneasiness, concern, and other uncomfortable feelings induced by the coming and potential danger of a person. Reasonable anxiety is conducive to improving the brain's reaction speed and alertness, thereby improving learning effectiveness and engagement, whereas unnecessary anxiety decreases the interest of students in learning and academic success[28].
Anxiety among students occurs during the lockdown because everyone was required to stay at home and all teaching and learning platforms took part virtually. Students' lost connection with human presence therefore it affects them mentally and emotionally. due to the possible risk of death caused by COVID-19, separation and lockdown, and the abrupt shift in teaching mode has raised the level of anxiety and generated intense pressure on most students.

Depression:
It is characterized by feelings of severe despondency and dejection, typically also with feelings of inadequacy and guilt, often accompanied by lack of energy and disturbance of appetite and sleep[28].

With all the above mental disturbances, personal loss due to COVID-19, the fear of losing the loved ones, the fear of the oblivious future post COVID, financial insecurity due to understanding about parents work pressure etc., may push the students into trap hole of depression.

Prevention of student's mental illness
In order to fight the negative impacts of this pandemic, we need to make sure our students have the mental health support necessary to cope with the losses and transitions of the past year.

Meditation and yoga are invaluable tools that can use controlled breathing and focus to help even the youngest students deal with their anxiety and confusion during this age of disruption. And in the case of yoga, the opportunity for physical exercise brings even more benefits to the mind. Thankfully, these methods are accessible to everyone, especially those working or learning from home[29].

There are many other important measures that families can take to protect their children's mental health: keeping a healthy diet and encouraging physical exercise; using online gaming or social media to stay connected with friends and peers; and keeping a regular routine and getting enough sleep.

Thus making this serious situation into less burdening situation with self care and turning the loneliness into solitude we can maintain a good mental health not only in students but also as a adult.

Summary:
The COVID-19 started its travel around the world on late 2019s , it started moving around and the world halted, many things went down but this E-learning platform made education to reach the students hands not requiring for them put their health at risk at the same time not losing their touch with academic learning for majority of students all over the world, it is indeed a rushful transition even for adults so it will be hard for students to take the whole thing in them swiftly , with the prolonged pandemic many students adapted this new way of learning, but the problem is with every merit we enjoy there will be a demerit that follows up for us to endure and suffer, the same goes with online learning .it has its own bad impacts on both physical and mental health and right now The environment of learning is house for many people with good environment good learning experience can be experienced but not every house is a good environment now even with the ongoing global pandemic it will probably be even worse, and humans are social animals with the lack of in-personal interaction with their friends, teachers can make it seem like looking at the screen with internal void , and with lots of time in hands attaining saturation in everything that the student was previously interested in , seeing parents suffer economically due to this pandemic it all may lead to lack of motivation, anxiety, stress, insecurity, fatigue, fear of growing old, depression etc., and with students with pre mental illness the condition may worsen. So it depends on one self, parents, teachers to help the students maintain their sanity in this insanity going around the world, with growing technology omitting E-learning is impossible but to maintain our mental homeostasis is tough but possible with adequate support and care.

Implication of the project:
This above study would further be used for emphasizing more on improving the quality of online lecture in a way that it can reduce student's mental burden. Thus, most of the educational institutions and government as well have to take initiative in providing all those facilities to students which may include allotting government authorized therapists once in a week or month for students to interact, for financially disadvantaged students , government can make non-profitable organisation to provide devices to include them in the academic learning even during pandemic and teachers can make this online learning into something fun and not with normal academic pressure to help students to maintain their mental health soundly. Thus, understanding online learning, its methods, its negative impacts on students mental health and providing all that can be provided to help the students in this horrendous pandemic is the implication of this project[22].

VIII.   Conclusion:
In conclusion, online learning is something that everyone is dealing with at the moment. Even though online learning is helpful in the current pandemic, it can bring more stress to students. Students are constantly feeling the impact of online learning through their social interaction, their participation in class, and their motivation. While online learning is stressful it is important to know that you are not alone[30]. Every student is feeling the impact of online learning. Find what helps you relieve the burdens that online learning brings. Online learning is a great way to continue educating during this pandemic. However, it brings its own set of problems. Online learning is a wicked problem, meaning that it does not and never will have a concrete solution. There is not one way to deal with this problem. Everyone will have their own solution.

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