

Hurdles faced by Education Sector in India during Online Learning System

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Abstract - Today everyone were home, which include the Americans, the Russians, the Chinese, the Indians and everyone. Several impossible things has made possible. And a Nano sized particle is pushing humans to run in panic. This Nano particle is a virus which may be created naturally or artificially but definitely a dangerous one. This has affected nearly 75 Lakhs of people all around the world and killed 4.5 Lakhs of people (study currently at 14th of June, 2020). A vaccine is still being created by over thousands of crews in comprising lakhs of talented and pioneering scientists. But no vaccine can't fight and kill this virus. This has turned the entire world upside down. Before this virus outbreak, the cost in Dollars of a Barrel of Crude oil was some 50 - 60. And today it came up to very low nearly 20 - 25. In the outbreak, people say that it too fall than above mentioned price. This is the best example of economic impact caused by the virus outbreak.

To control the spread of virus, Lockdowns has been implemented by Governments of several Nations. So industries which work with the help of laborers were forced to shut and this greatly hit the economy as well as last line of people in economy. This includes Automotive, Manufacturing, Oil and Gas, Aviation, Retail, Tourism, Hospital, Sports, Agriculture etc. This not only denote the effect of industry outputs and economy of the nation but also the employers who depend in this industry. Education is also currently facing several hurdles in this Lockdown. And when everything comes to online, How far this E-Learning will succeed? And how can India like a developing country sustain in this situation? What does the students really feel about as well as the faculty members? We collected several information from our college students with the help of Surveys and compiled this research paper on Possibility of E-Learning advantages and Disadvantages and recommendation point of view by the authors.

Key Words: COVID-19, Lockdown, Student Feedback, Faculty Feedback, Online Learning

1. INTRODUCTION

This Corona virus is officially declared by China to the world countries in 19th November 2019. From the structure of having spikes, it is renamed as COVID-19. The constant 19 denotes the year of Outbreak of this virus. This COVID-19 is a water-borne spreading virus which spreads

through water and water medium. When an affected person sneezes or coughs, the liquid waste from his nose can be act as a carrier for this virus. The life time of virus differs depending on the surface it lies. For example, in steel or metals, their lifetime is high up to 3 Days. And in cloth or fabrics (denoting dresses) their lifetime will be from few hours. The symptoms of this virus are Fever, Dry Cough, COLD, lack of smell and taste, stomach ache, tired etc. This will become active, when it enters the human body and it takes up to 14 days duration for growing and indicate their presence on symptoms. The affected person could be divided into two categories. They are Symptomatic and Asymptomatic.

The Symptomatic type is nothing but people who denote the symptoms of virus within 14 days of the attack. This would be easier for them to identify and treat them with the available medicines. The asymptomatic are the people who would be affected, but their symptoms won't be available within a duration of 14 days. So, the virus grows inside such people, starts to spread others but shows no symptoms. The technical reason behind this fact is, the immunity power of the affected person may be higher which won't allow the virus to show its effects. Once they have a fall in their immunity power, the virus will start to show its presence with the symptoms. This virus mainly attacks men than women also it affects the Respiration and lung system in our body. So, people who get serious treatment used to have Ventilator connected and thus by giving artificial air for breathing. People who face death are mostly who have some more serious health issues like Sugar, Blood Pressure, Heart attack ailments and some more diseases. But it spreads common to all sorts of people and ratio is compared to higher in men by 50-60% and for women 40-50%.

2. LOCKDOWN A MEDICINE

China, the place was first COVID-19 patient discovered on 19th November 2019, and was unaware of its dangerous levels. But soon by observing its spread value of "R-Rate", they start to implement "Lockdown Strategy".

Without the conscience of Govt, none can enter the affected place nor exit. This helps to control the spread of the virus. Until today in all countries, this similar Lockdown seemed to be the only solution. Governments can't simply announce and expect people to follow Social Distancing. So this Lockdown has been a major helping hand to suppress the spread. Some relief is also be given for the primary and necessary services like Hospitals, Health Department, Police Department, Sanitation Department, Laboratories, Fire Department, etc.

In addition, several people don't understand the proper meaning of this Lockdown. Lockdown is implemented not to disturb people but to control the spread of viruses for a shorter time, get prepared to face the largest spread outbreaks if happen. This lockdown pauses the life of people and the entire nation would strengthen its health infrastructure to face anything. This also helps people to not get easily affected and let them stay. But people don't follow and roam. They make a way to spread the virus by violating the Lockdown rules. That's why they get fined and warned by police officers. We don't have a vaccine or any other controlling medication except increasing immune power for this virus. And that's why the lockdown in this situation is called as a medicine for several unaffected people.

3. INDIA IN LOCKDOWN

The Government of India took Lockdown as medicine to escape from COVID-19. The entire nation of 1.3 billion population was taken under the control as a preventive measure against the COVID-19 pandemic in India. The lockdown in India has its 5 Phases. The First phase lockdown was ordered on 24th March for (21 days) from 25th March 2020 – 14th April 2020. During this time period, nearly all services and factories were suspended. People were hurrying to stock essential parts in some parts of India. Many arrests were made across the country for violating the government home quarantine norms. The government meetings were held by online soft wares. The Second phase lockdown was ordered from 15th April 2020 to 3rd May 2020 (19 days). On 16th April, lockdown areas were classified as "red zone", indicating the presence of infection hotspots, "orange zone" indicating some infection, and "green zone" with no infections.

Certain relaxations were done on 20th April, allowing shops, agricultural business, dairy, aquaculture, and plantations to open. Public works programs were also allowed to reopen with instructions to maintain social

distancing. Cargo transportation vehicles, including trucks, trains, and planes, would run. Banks and government centers distributing benefits would open as well. States have been asked to screen the people, quarantine them, and to do periodic health check-ups. The Third phase lockdown was ordered from 4th May 2020 to 17th May 2020 (14 days). As a usual movement for the public is provided only to the green zones of the country. Even public transport is given as a relaxation, whereas 50% capacity providing buses can be operated within the zone. Orange zones would allow only private and hired vehicles but no public transportation. The red zones would remain under lockdown. The above-mentioned zone status are just temporary. For every week, based on the COVID-19 reports, the zones may transform into many phases. The Fourth phase lockdown was ordered from 18th May 2020 to 31st May 2020. This time the Red zones were further divided into containment and buffer zones. The local bodies were given the authority to demarcate containment and buffer zones.



Fig 1. A photograph taken from Drone during Lockdown

4. HURDLES IN EDUCATION DEPARTMENT

All Over in India, nearly 40 Crore of students pursue in colleges with several sorts of careers including Engineering, Law, Medical, Polytechnic, Arts, and so on. All these institutes mostly teach their students with Blackboard Model Learning. Nearly 10% of institutes have started to transform online before a couple of years, they share the notes, record some video lectures, and a little bit related to that. But this lockdown brought everything drastically down. It forced all the above sorts of institutions to transform digitally which is a merely impossible thing. To sort out the problems, online learning can be possible only if Internet-connected devices available with both students and faculty. THE HINDU newspaper in an article says in India, Nearly

45% of people have their own computers or Laptops. Here, just 15% has been connected to the internet. While 24% of people in urban areas have Laptops or Personal Computers and within 100% in 24% just 42% have active internet connection within them. Similarly, 78% of Indian people only have a proper net-connected mobile. In which 57% from rural and rest were urban areas. This shows the count of internet-accessible people which must be considered. Further, nearly 2 out of 3 houses have siblings. This means 1 mobile for 2 online classes. In addition to that, they can't attend the classes with proper initiative. We used to see pet animals revolving before Lap or PC, we can hear people quarreling with each other or other surrounding disturbances. This means the students mostly don't have proper locations or effective social distances to listen and ask the queries efficiently.

In some places, the students may have a proper network connection. But when considering their homes in villages, the network speed will be extremely low up to 0.5 kb/s. So they can't even effectively buffer an NPTEL video in YouTube. A network connection present but still waste. Even entrance exams like JEE, NEET, UPSC, etc. have been postponed without proper dates. This shows the unavailability of Online Exam conducting situations revolving. If this delayed, similar hurdles should be faced by online learnings. Even today eminent IT firms like Microsoft, Infosys conduct online Protocored exams with Webcams. But this will not be possible in our case. In the latest update, from SWAYAM Online Courses Portal, NPTEL exams can be conducted for students who have webcams placed lap or PC in their homes. And for the rest, the NPTEL exam will be postponed or canceled. Also, several IIT, NIT, and students of all top, central Government, State Government, and private college students start to lose their precious Job placements and Internship opportunities. The companies start to cancel the Pre Placement orders they given to students. This gave a powerful headache to the education sector in India, not to end these are some major hurdles and numerous hurdles are being founded for every location in every state in India. If these problems not perfectly solved, it will create a disparity between students based on economic standards. This is not at all a good statement to hear for the education platform in a country.

5. MEASURES TAKEN BY GOVERNMENT OF INDIA

To overcome this critical situation by not stopping the learning several Central government firms taken several measures. The MHRD, UGC, AICTE, and many more

organizations provided several helping hands. The UGC has allowed the students to take an online degree while a full-time degree is taken. This will enable the students to learn and update as per the requirements of the job opportunities. AICTE has selected 500 colleges all over the nation to provide free open Wi-Fi networks to access for college students unlimited. This will help them to provide easy steps for online learning. The MHRD constantly supports several plans to help online learning more efficient. Special Faculty Development Programs conducted for a selected period of time for the faculty all over the nation. This would help to train the faculty to adapt and let students adapt to the new online learning culture efficiently. AICTE tied with several top firms and startups to provide free education on a basis of online courses with or without certifications for the students with free of cost.

A webinar is daily conducted on evenings in YouTube by IITs to provide lectures on several healthy topics for students with free of cost. The recorded sessions were also made to be available for the students. This makes the students listen again and provide opportunities for students who miss such things. Special Hackathons are being conducted for the students to enrich their ideas and outshine them. Also, enormous courses are being updated and more technical content is prepared and posted in Swayam Prabha, Diksha, National Digital Library online platforms for the students free of cost. The MHRD Ministry and Urban Development ministry together signed to an Online Internship program called TULIP which will enable the students to get an internship opportunity as well as job opportunities based on their expertise. This TULIP platform connects several industries in a city and provides the profiles of the students and vice versa for the openings for graduates. And several more educative schemes were being conducted in the lockdown session to enhance the online learning and provide more technical knowledge for students.

6. FEEDBACK FROM FACULTY REGARDING ONLINE LEARNING

We asked the feedback and their experience regarding Online Learning.

Dr. D. Jayabalakrishnan, Head of Mechanical Department at Sriram Engineering College. He says, "Days before Lockdown I used to take lessons to the students physically and they listen concentrated and focused. When a particular student loses his attention, I can easily figure them out. But after lockdown, we conducted a trial online class from zoom. The 48 students are just like 48 boxes in my

small mobile screen, were hardly I can see 4 boxes clearly at a time. Some people used to turn off their video to save network speed and bandwidth. I even don't know whether they are understanding the things I teach them. To be clearer, we cannot expect an equal level of concentration and attentiveness like in the classrooms during blackboard teaching. There are numerous distractions for students during online classes. To be frank, they are very new for the concept and they should be trained and to be adapted for online learning, because it seems like we have to live and learn with this virus for few more days to months."

Dr. S. Manikandan, Head of Department Computer Science and Engineering at Sriram Engineering College. He says, "Than compared to classes attended in schools and colleges. Students feel online classes more comfortable and flexible. It brings education right to the home without any efforts. Most importantly students get individual attention in online classes. It helps them to meet interesting people without any break, online classes promote life - long learning for students. On the other hand, online classes consume more time than on - campus classes for the sake of the students to understand clearly. It may create a sense of online classes make a student's more responsible towards their learning at the same time provides more and more of freedom. Key point about this is that if its financially beneficial. It overcomes transport and other expenses. At the same time long hours of continuous classes may strain the eyes of students, which causes vision problem. Even though the students miss one to one interaction through online classes, they are taught to be self-disciplined. Apart from this they require self - motivation to sit concentrated for the entire session. These are some benefit which the students gain. A two sides of a coin, online classes have some plus and minus."

7. FEEDBACK FROM COLLEGE STUDENTS REGARDING ONLINE LEARNING

Mr. Aravindh pursues his Bachelor's in Mechanical Engineering at Sriram Engineering College. He says that "The Patients are more here in the area I live. I belong to Tiruvallur District. And, an online class isn't a practical thing for me. Two of my parents work and I have one sibling who studies higher education in school. But we have only one smartphone. Priority goes to her and, I can't attend the online classes when she does that. The people who decide to push online learning should have thought about all the practical problems that we are facing. Also, I can be concentrated and focused for not more than 4 hours during

learning. When the trial online class was conducted, I attended and I still remember that one of my friends forgot to disable the audio and we all listened to the quarrels in their family. We may get numerous opportunities in this Lockdown by getting access to several paid software free for a short duration of time. But this lockdown has made to cancel my Internship opportunity at Tech Mahindra, which I received after months of hard work and plenty of mailings from the plant's HR. The average internet bandwidth usually I receive here during peak hours will be 0.1 to 40 kb/s which is middle from poor to normal. But in night times, I get a decent speed from 25 kb/s to 1.3 Mb/s and this make me easier to view the recorded online sessions without network issues."

Ms. Rekha pursues her Bachelor's Degree in Computer Science & Engineering at Sriram Engineering College. She says, "I belong to Chennai District. And cases in my area are worse. Online classes won't work. Because in many houses they don't have a proper internet connection. Though I live in the city, often my network speed is very low for a live streaming online class. The hurdles I face are very similar to all my friends who attend online classes. And this shows improper planning from the educators who introduced the concept of online learning. We simply cannot stare at the mobile for hours and take notes efficiently. Watching movies is entirely different than attending online sessions. We received opportunities from several IT Giant Firms to do their courses and use their online platforms for free, their paid subscriptions at a dead price, etc. Still, this lockdown made revolutionary harms to my career. I missed several Placement opportunities which I was eagerly waiting to showcase my skills to grab a job. I don't know how I am going to seal up the giant holes made by lockdown in my career. When coming to network speed I can get a speed of 0.8 to 50kb/s a decent speed here. At night, it is even better for me to get a good speed of 30 kb/s to 2.5 Mb/s.

Mr. S. Hari Krishnan pursues his Bachelors' in Electrical Communication & Engineering at Sriram Engineering College. He shares that, "I belong to Royapuram locality, where the COVID-19 cases usually at the peak in the count often. We belong to people who earn very less which can only be satisfied with daily needs. This sudden shift to online learning is an unexpected one. I live in a clumsy area, were huge noise disturbances arrive. Generally, in classrooms, I used to have huge doubts and it too gets cleared spontaneously in classrooms. But during online sessions, I have to disable my audio. Whenever I get a doubt, I will turn on my audio chat and all the students will receive

huge clumsy noises which is very common in the place I live. They get irritated and this decreased my learning ability and mindset to solve my doubts. I don't have a well socio-economic place to attend the class silently. The bandwidth here is not up to at an appreciable speed, sometimes I get nearly 40 kb/s which is fine to attend an internet audio call efficiently. But the network will not be stable here and we cannot predict when I can get good speed and poor speed in bandwidth. One of the advantages in lockdown to say, I have enhanced up all my individual skills because I have enough time available here. And the negativity is online learning which has become a scribbled paper in a beautiful notebook of my college studies. "

Mr. Prem Anandh pursues his Bachelors' in Electrical & Electronics Engineering at Sriram Engineering College. He says, "I belong to Tondiarpet locality. It's been a common situation for me to hear the huge sirens of Ambulance and Barricades mentioned CORONA ISOLATED ZONE. Everyday people from the new street get positive. Streets blocked, within a duration of time they get opened. Some again get positive and again gets blocked. I can attend online classes effectively only with a duration of a maximum of 2 to 3 hours. I love to interact with the faculty when they teach. But unfortunately, if I have doubts. I have to wait for the doubt session or wait when the faculty ends the topic or type my entire doubt in a chat box. In addition to that, the network plays for its role to irritate me. Sometimes, I used to get headaches and sores in my eyes but still, I couldn't get the topics well understand. I miss my faculty, friends, and the real college. I was also a sport-loving person. Nearly for the past 3 months, I was not playing anything with my friends. In my point of view, online learning will create unhealthy education. Because if we don't get enough interaction from faculty then it's nothing like reading a theory book like a storybook."

Mr. Dhilipan pursues his Bachelors' in Automobile Engineering. He says, "I live in Perambur, cases are huge here. Tests are often conducted, awareness is always given, and still, people get positive for COVID-19 tests. Not all students have daily 1 GB of the Internet. Some students like we have only 10 GB for 35 days. If we need to attend the class with full fledge, we have to pay at least 500 rupees. But my parents are home still lockdown and I can understand the economic situation of my family and I don't want to let them spend the savings to me. Because we are a poor side, and our parent's daily wages earn the same few hundreds. So, there is no way to save money and better to run the family. Whenever I attend online sessions, maximum I would

disable the video calls. So, I could save some more data. To be frank, we were not at all prepared for this kind of lockdown nor online sessions. More than that this online learning will not even be a substitute for normal learning. I can concentrate only up to a maximum of 2 hours by viewing a mobile. To increase my burden my phone won't work very well. Sometimes I have to uninstall and disable the very essential applications to make my phone run without hang. People say that the net pack costs just few hundred. And I don't know, why they can't understand that the daily wages of my parents were less than that few hundred. Will people who advise come forward and pay for me? I have to do everything on my own. We have some online free courses even some offer certification for completion, it's a very good initiative. But if we access that, our data will no more available for the sessions. One of the very best things I have is, all the NPTEL videos uploaded on YouTube which can be viewed even with less clarity and less data consumption. The speed is unpredictable here, users are huge and we can daily face a network clog and this has become very common from lockdown days."

Mr. Sivakumar Veerabathiran pursues his bachelors' in Chemical Engineering at Sriram Engineering College. He says, "I live in Kanchipuram District and cases here are comparatively less than Chennai and Tiruvallur. But online class is not at all a possible thing for me. I have a sister who also pursues her Under Graduation in Engineering and in her college, online courses are very strict. We have only one smartphone and I don't have an option other than to give up. From the trial online classes started, I was unable to attend and I don't know what to do further. My college accepted my situation I used to receive online notes from the students but her college is worse in that. Even at night, I used to sit and study and sometimes I get tired, uneasy by staring at a mobile phone continuously at night. My body gets pain for sitting long in the same posture, and my sleeping time will be from 2 am to 10 am. Even if you can't believe, this is the reality I face here. The network is not at all the best thing for me nor my sister to attend an online class. If we don't disable video option, we can't get live streaming. People say that they have opportunities and advantages in the lockdown. But it totally messed my schedules, I was accepted to take an intern in Central Leather Research Institute. But later after the days of lockdown, I received a mail from them. They said that they have cancelled all the internships and mentioned none about recalling or again providing the opportunities for us. And I even know that, when my college reopens, I will not be allowed to attend this intern even Industrial visit due to short duration of working hours."

8. SURVEY BASED RESULTS

A Survey has been conducted by Google forms by us indicating the necessary infrastructure equipping for E-Learning. This survey has been conducted from 1000 students which has questions of asking

- a. Do you have Printer?
- b. Do you have Personal Computer?
- c. Do you have Laptop?
- d. Do you have UPS?
- e. Do you have Wi-Fi Connection?
- f. Do you have Smart phone?
- g. Do you have active network in your home?
- h. Do you have siblings?

The results were,

Criteria	Yes (%)	No (%)
Do you have Printer ?	15.7	84.3
Do you own a PC ?	24.3	75.7
Do you have a Laptop with You?	36.7	63.3
Do you have UPS?	22.7	77.3
Do you own Wi-Fi Connection?	31.7	66.3
Do you have a smartphone?	62	38
Do you have Network Connection?	54.3	45.7
Do you receive Proper network for online classes?	30	70
You are Single child or have siblings?	54.3 (Single Child)	45.7 (Has Siblings)

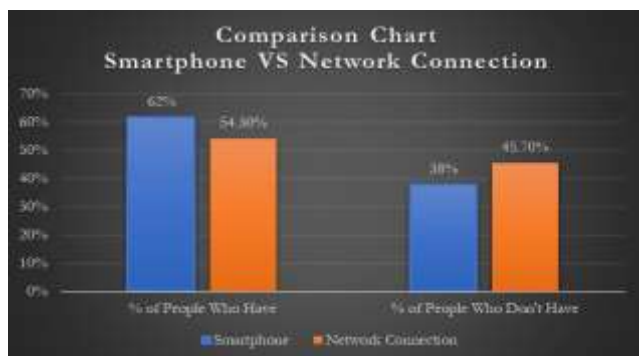


Fig 2. Survey Chart comparison for Smartphone and Network Connection

9. RECOMMENDATION FROM AUTHOR

From the survey result and individual student feedbacks, we authors come up to some points namely, The Education Infrastructure must be developed and well equipped. Even if the COVID-19 comes to an end sooner or later. Slowly Education sector should transform into online and all necessary actions should be taken. This can be done by discussing with several faculty, officers, and students. So again in the near future, all such problems discussed by us can be avoided. Further, we also recommend, A Joint initiative of Central and State higher education department, MHRD officials, UGC, AICTE, Deemed University Vice-Chancellors, Telecom Network providers, and all other essential people to form a committee and make strong decisions based on the all above bandwidth problems. This crew should help in reinforcing the online educational infrastructure in our nation. The Internet for learning should be provided free for all students including schools and colleges. Open educational Wi-Fi Infrastructure should be kept like Rail wire placed by Indian Railways for passengers. Students during learning process can connect the internet at the nearest educational institution with this network. The network should be provided with a free of cost basis for whether they belong to that institution or not. And special regulations should be made enough to monitor the student's network activity and allow them to utilize the network only for educational purposes.

We also recommend that all the Faculty and School teachers should be trained to adapt to this new online learning sessions. The existing 7 to 8-hour timetables can be changed to creative timetables so that, it decreases the student's mental pressure and increase their creativity. For these timetable modifications, we can analyze the teaching methodologies which are practiced in world nations. Some more online courses can still be made to free for all students to enrich their knowledge and certifications to boost their resume. Interactive and Face to Face online MOOCs can be created and made to open access for students for diverge subjects in the lessons. This will help the students even if they miss their sessions due to unavoidable situations. Exams must be capable to conduct with online protcored version. Artificial Intelligent programs are already available for these online examinations. The power supply for the colleges and schools should be increased and taken with care. Especially when they support online education, their servers should run without any disruptions. Students should undergo some training to adopt online learning and make them efficient. But one thing is very clear from our point of

view, online learning cannot replace the efficiency of the Blackboard Learning Mechanism. Online Learning could be an appreciable alternative but cannot be an efficient substitutive.

10. PREVENTIONS FROM COVID-19

Still today, there is no vaccine developed for this COVID-19 virus. One of the best medicine still considered to maintain Social Distance and wearing masks. Masks must become one of the essential clothing of us like slippers and dresses. Wherever we go, we should wear a mask, and especially when we about to hear or speak with a stranger, wearing the mask must be compulsory. We should control physical contacts during greeting others, as we should control and avoid hugging or handshakes. Also, we should try to avoid unhealthy, fast, and junk foods which will decrease our immune power directly or indirectly for a shorter time period or until the virus leave our nation. The usage of soap and sanitizer should be made as a habit. If we feel any symptoms of COVID-19 without hesitation, we should meet the doctor or test us for COVID-19 PCR Tests or any other tests recommended by the nation depending on the infrastructure of the nation. Once the test sample is submitted, we should isolate ourselves in our houses until we receive the test result. If home isolation does not seems to be possible, we should contact the nearest COVID-19 helpline provided by the nation's health department. This will also let all over surroundings too stay safe. Whenever we get opportunities, we should often boost our immune power, which would help us to fight with COVID-19.

11. CONCLUSION

We like to conclude that, this paper has discussed all the problems faced during implementing E-Learning. We can also identify that the students were not prepared in terms of patience nor concentration in the online class concept. If they receive proper boot camps or counseling sessions, they can be transformed easily. The current generation may be coupled with digital gadgets and it's not a problem, but to let them use their gadgets wisely in terms of learning especially online education. Separate planning and monitoring have to be made to let them concentrate for a shorter period of time initially. Further, the infrastructure for exhibiting Online Learning in India is not well. Even students at the city level point out network issues, which is not at all a good statement. We have provided some recommendations in order to expand the network platform for online learning. The discussion also points out that, students can't acquire maximum amount of knowledge in online classes as they

acquire in Blackboard Learning methodology. And they also point out that MOOCs won't be a proper solution. After making and analyzing all the statements, surveys, and feedback from students as well as faculty members, considering the infrastructure, time to create a new infrastructure, current virus outbreak ratio and many more important data, we conclude that Online Learning may be a Good Alternative. But definitely it won't be a Best Substitutive. The common point of view from us is, Online Learning will create Unhealthy Graduates.

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