Online education and the Covid-19 Pandemic

[Eliza Bajrami, Ustijana Rechkoska- Shikoska, Agim Rushiti]

Abstract— **In this research paper that we conducted we have done many analyses for the outbreak of Covid-19, starting from online education during the pandemic as one of the most trending situation in our country and also in the whole world. Several dataset analyses have been conducted, in a form of a survey from multiple students from different age and gender.**

Keywords—**Covid-19, Students, Online education, Survey, Analyses.**

I. Introduction

In order to explore the impacts of this pandemic on the lifestyle of students, a survey was conducted in a total of 1182 individuals of different age groups from various educational institutes in Delhi - National Capital Region (NCR), India. The impact of COVID -19 on the students of different age groups is presented: time spent on online classes and self-study, medium used for learning, sleeping habits, daily fitness routine, and the subsequent effects on weight, social life, and mental health. Moreover, the research found that in order to deal with stress and anxiety, participants adopted different coping mechanisms and also sought help from their near ones. Further, the research examined the student's engagement on social media platforms among different age categories. This study suggested that public authorities should take all the necessary measures to enhance the learning experience by mitigating the negative impacts caused due to the COVID -19 outbreak.

II. Related Work

A. *The COVID-19 pandemic has changed education forever. This is how:*

According to "Wang Tao, Vice President of Tencent Cloud and Vice President of Tencent Education" 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

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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. For example, whilst 95% of students in Switzerland, Norway, and Austria have a computer to use for their schoolwork, only 34% in Indonesia do, according to OECD data.

For those who do have access to the right technology, there is evidence that learning online can be more effective in a number of ways. Some research shows that on average, students retain 25-60% more material when learning online compared to only 8-10% in a classroom. This is mostly due to the students being able to learn faster online; e-learning requires 40-60% less time to learn than in a traditional classroom setting because students can learn at their own pace, going back and re-reading, skipping, or accelerating through concepts as they choose.

B. *Advantages and Disadvantages of Online Learning*

Inspired by Priyanka Gautam who wrote about advantages and disadvantages of online learning.

One of the most oft-used terms after the pandemic is the term "new normal." The new normal in education is the increased use of online learning tools. The COVID-19 pandemic has triggered new ways of learning. All around the world, educational institutions are looking toward online learning platforms to continue with the process of educating students. The new normal now is a transformed concept of education with online learning at the core of this transformation. Today, digital learning has emerged as a necessary resource for students and schools all over the world. For many educational institutes, this is an entirely new way of education that they have had to adopt. Online learning is now applicable not just to learn academics but it also extends to learning extracurricular activities for students as well. In recent months, the demand for online learning has risen significantly, and it will continue doing so in the future.

As with most teaching methods, online learning also has its own set of positives and negatives. Decoding and understanding these positives and negatives will help institutes in creating strategies for more efficiently delivering the lessons, ensuring an uninterrupted learning journey for students.

C. *Challenges of home learning during a pandemic through the eyes of a student*

A student Rarkryan P. Angdhiri wrote about his own perspective of home learning during the pandemic in Jakarta the capital of Indonesia. It inspired me to cite his words, because it Is interesting to see it also from the eyes of students including the fact that I am a student too.

When the first two COVID-19 cases were announced in Indonesia in early March, the country was in a panic. On March 14, Jakarta Governor Anies Baswedan announced that all schools in Jakarta were to be closed. However, many schools were not ready to apply home learning programs yet. The online classes implemented in Indonesia work differently from those in the US. This is due to a lack of preparation in this country. Students reported the home-learning program to be even more stressful than regular classrooms. Some of the common reasons for this went along the lines of: "Normal classes may have been difficult, but having friends makes it so much more manageable and less stressful. Online classes take out the benefits of having friends to socialize with and being stuck alone with nothing but assignments.

However, although the closing of schools does have a silver lining (home-learning programs where students are still able to learn), the true sufferers of the government order of school closings are the students in less fortunate situations and the students who are in schools that are not well-funded.

This is because those students lack the devices and internet access to be able to participate in online classes, and the schools do not have the capacity to teach online. Unlike in New York where devices are distributed to students by schools and private companies, in Indonesia, there is yet to be this kind of effort.

This leaves many students in a bad spot where they are unable to receive an education. Although internet service providers have been giving out free data packages, they are simply not capable of supporting video calls on programs such as Zoom.

D. Education during COVID-19; moving towards e-learning

A survey conducted by UNESCO concluded that most education systems, of the 61 questioned countries, implemented measures related to distance learning. Schools, teachers, families, and learners have taken on e-learning at large, where teaching is undertaken remotely and on digital platforms. There are some exceptions, for example Sweden did not close their primary schools, and in e.g. Belgium and Norway a few school facilities remained partially open for children whose parents are working in essential sectors. Besides having access to the internet, it is also important to have a quiet place to study and a device to work on. Families with multiple children that need online education may not have a dedicated device per child, making it difficult to follow all classes. According to a report published by the OECD, based on data from the Program for International Student Assessment (PISA) among 15-year-olds, there are, again, large differences between socio-economic groups. In many European countries, over 95% of student's report that they have a computer to use for working at home. About 91% reports that the have access to a quiet place to study. However, in Indonesia for example only 34% have a computer, and only 70% have access to a quiet place to study.

III. Online learning and education for all during and after Covid-19 pandemic

Since the COVID -19 pandemic has disrupted the normal lifestyle of people across the globe, the virtual world has come to the rescue. Amongst many institutions schools have also shifted their base to virtual platforms to conduct classes online. Consequently, catering to the needs of all stages of education from pre-primary to university level, online education has emerged as an alternative to ordinary face to face classes. Students and teachers also have their own struggles while accessing these online platforms. Due to financial constraints, students are not able to access the internet, and are devoid of electronic gadgets and laptop, phone or computer or even radio and TV. Those students who have facilities to attend to online classes face barriers in terms of unavailability of physical space, which is equally applicable to teachers who are supposed to conduct online classes from their home. There are also social barriers such as discrimination against girls as they are expected to do household chores instead of attending online classes in the mornings.

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IV. DATASET ANALYSIS

The dataset which is analyzed for this research paper is found on Kaggle (Kaggle.com). Kaggle allows users to find and publish data sets, explore and build models in a web-based data-science environment, work with other data scientists and machine learning engineers, and enter competitions to solve data science challenges.

On this dataset A 19-set questionnaire was developed, which included a variety of multiple-choice questions, Likert scale and for a few questions, the respondents were allowed to enter free texts. The survey was administered using the Google Forms platform, which requires subjects to be logged in to an e-mail account to participate in the survey, it restricted multiple entries from an individual account. The distribution of the questionnaire was conducted through the outreach of social media platforms, e-mail, and standard messaging services. Clear instructions with the google form were provided to ensure the respondent must be a student. This survey was conducted to students through the medium of Google online platforms from July 13 to July 17, 2020. The online survey questionnaire contained four subgroups:

a) Participants were asked to describe their general demographics, such as age, the region of residence. b) Information about the daily online learning routine following the transition from offline learning in educational institutions in India: average time spent for online study (hours) /day; medium for online study; average time spent for self-study (hours)/day.

c) Assessment of the experience of online learning to evaluate the levels of satisfaction among students. d) Assessment of health due to the change in lifestyle: average time spent on sleep (hours)/day; change in weight; average time spent on fitness (hours)/day; the number of meals/days; also, we considered further questions about the medium of stress busters during the pandemic, cohesion with family members, etc.

The aim of this survey study is to investigate the impact of the COVID-19 pandemic on the education, health, and lifestyle of students from different age-groups.

After downloading the dataset, analysis of the dataset began. Since the data has many columns, only the most important columns were analyzed.

Testing and Results

The first analysis includes Time spent on Online class. The analysis included the Age of subjects and their time spent on online classes. As we can see on the visualization below the number is low starting from 1 until 211. A massive growth is shown for students from the age 15 until 22. The visualization shows us that students in the ages of 22, 21, 20 and 19 are the ones that attended the online classes regularly. However, in the individuals of middle age and the young children we can see a decrease in their time spent on online classes. A conclusion can be made that young adults (19-22) have the time, the interest and the capabilities to attend the online classes more than students of other age.
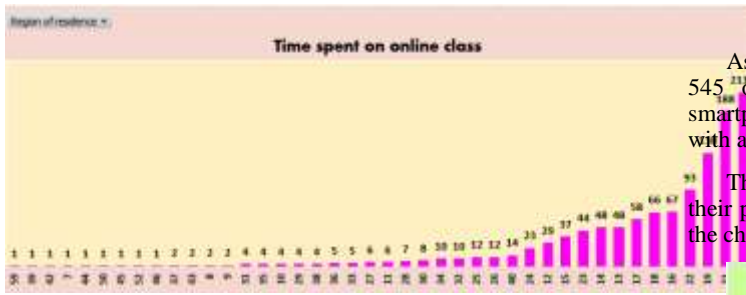
Figure 1. Time spent on online class

The individuals were further asked to rate their online class experience. The rating included 6 levels:

1.Average

2.Excellent
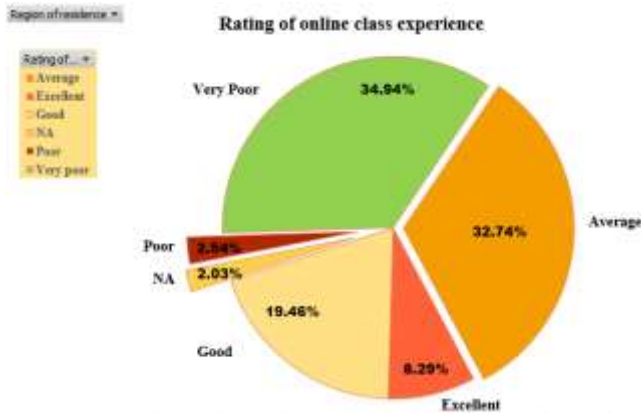
3.Good

4. NA

5.Poor

6.Very Poor

Figure 2. Rating of online class experience

As seen on the chart above 34.94% of the individuals responded with very poor experience, and 32.74% of them responded with Average experience, 19.46% had a Good experience, 8.29% had an Excellence experience,2.54% had a poor experience. Unfortunately, the bigger part of individuals was not satisfied with their online classes, and responded with a very poor experience.

The next step of the survey included asking the individuals which medium they used for their online classes the most.

Figure 3. Medium for online class

As per the chart above, it can be seen that from 1182 individuals 545 of them used a laptop/desktop, 539 of them used their smartphones, and only 37 of them used tablets, and only 5 responded with any gadget.

The individuals, more precisely the students also responded to their preferred social media platform. Let us see their responses with the chart below:
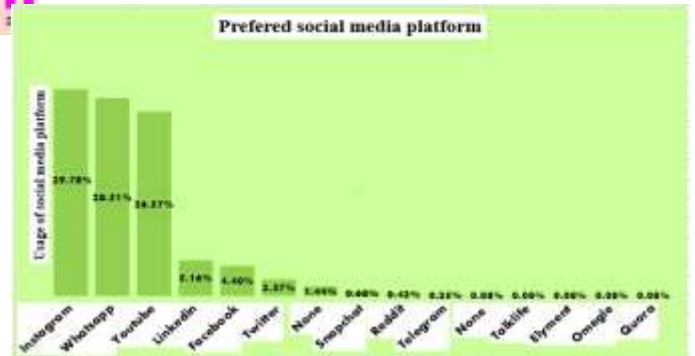

Figure 4. Preferred social media platform

The chart above shows us that the most used and preferred social media platform is Instagram with 29.78% of usage. WhatsApp it's close with 28.51% and YouTube with 26.57%. However, the other 12 platforms have a low usage from 5.16% to 0.08%.

The health issues were also considered during this survey. The individuals also had questions regarding their health during the lockdown.

Figure 5. Health issues during lockdown

From all 1182 individuals only 13.62% of them had health issues during the lockdown and 86.38% responded with NO.

The survey also included the question regarding the weight change in the individuals during the lockdown. Let us have a clear picture regarding the weight changes:

Figure 6. Weight changes

We are all aware that during the pandemic and the lockdown there were and still are a lot of changes on the relation and the connection with our family, relatives, friends. For some the pandemic had a very positive impact because it allowed individuals to connect more deeply with their families while being together more time than before, with their relatives and also with their friends, by virtually communicating with them the whole time. However also for some the pandemic had a negative impact on their relationships with other people.

For this survey, and for the individuals who participated on this survey the lockdown had this effect on their connection with others:
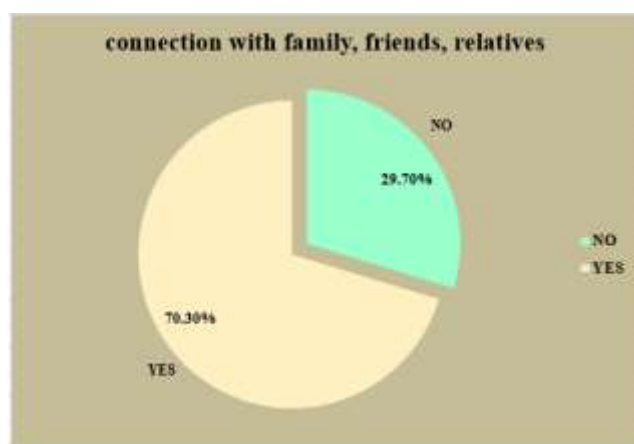

Figure 7. Connection with others

70.30% responded with YES to gaining and achieving more connection with their loved ones, however for 29.70% of individuals the lockdown didn't impact their relationships with others in a positive way, they didn't gain more connection with their families or friends. However, there is a huge difference in the percentage which allows us to come to a conclusion that yes, indeed the quarantine had a positive impact on the majority in the aspect of their relationship and connection with others.

V. Conclusion and Future work

The outbreak of Covid-19 has upended the lives of all parts of the society. One of the most immediate changes introduced was the closure of educational institutions to slow the transmission of the virus.

In this study, the aim was to analyze the impact of the COVID-19 pandemic on the education, health, and social life of the students. Limited class interaction and inefficient time table significantly affected the satisfaction levels among students. The peer-to-peer impact in the school environment motivates individuals to work hard and learn social skills, which may not be possible in an online setting. Moreover, the biggest challenge for online learning is the requirement of efficient digital infrastructure and digital skillset for both students and teachers.

Proper training of educators for the digital skills and improved student-teacher interaction must be conducted. For disadvantaged students, availability of digital infrastructure with proper internet availability and access to gadgets must be ensured to avoid any disruption to their study.

In this paper, the findings indicated that the Covid-19 outbreak has made a significant impact on the mental health, education, and daily routine of students. The Covid-19 related interruptions, highlight key challenges and provide an opportunity to further evaluate alternate measures in the education sector. The new policies and guidelines in this direction would help mitigate some of the negative effects and prepare educators and students for the future health crisis.

In conclusion, online learning is beneficial to the students, tutors and the institution offering these courses. Online learning can be implemented on all learning institutions and research can be done on how to improve this learning process even further and even better.

As for future work we can conclude that the main interest and point for future work is focused on further integration of database analysis for students as well as educators on more thorough analysis on impact of online education in our country as well as on other countries around the world.

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