Impact of COVID - 19 on Education: A case study on 1st year students of IISER Kolkata

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§1 Acknowledgements

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1. Our batchmates who participated in this survey and shared their experiences during the pandemic and shared their unique experiences of learning continuity during this pandemic.

2. Our professor Sujata Sen for providing us with such interesting and influential topic to work with. We got to work on field and in-depth about the problems that students went through during the pandemic.

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§2 Introduction

Coronaviruses are a group of enveloped viruses with non-segmented, single-stranded, and positive-sense RNA genomes. Apart from infecting a variety of economically important vertebrates (such as pigs and chickens), six coronaviruses have been known to infect human hosts and cause respiratory diseases. Among them, severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV) are zoonotic and highly pathogenic coronaviruses that have resulted in regional and global outbreaks Coronaviruses possess a distinctive morphology, the name being derived from the outer fringe, or "corona" of the embedded envelope protein. Members of the family Coronaviridae cause a broad spectrum of animal and human diseases. Human coronavirus (HCoV) infection causes respiratory diseases with mild to severe outcomes.

The COVID-19 pandemic has not stopped at national borders. It has affected people regardless of nationality, level of education, income or gender. The COVID-19 pandemic has also had a severe impact on higher education as universities closed their premises and countries shut their borders in response to lockdown measures. Although higher education institutions were quick to replace face-to-face lectures with online learning, these closures affected learning and examinations as well as the safety and legal status of international students in their host country. Perhaps most importantly, the crisis raises questions about the value offered by a university education which includes networking and social opportunities as well as educational content. To remain relevant, universities will need to reinvent their learning environments so that digitalisation expands and complements student-teacher and other relationships.

Reopening schools and universities would bring unquestionable benefits to students and the wider economy. In addition, reopening schools would bring economic benefits to families by enabling some parents to return to work. Those benefits, however, must be carefully weighed against the health risks and the requirement to mitigate the toll of the pandemic.

The reason behind choosing this topic as our dissertation project is that we have experienced the whole covid pandemic, The shutdown of school, lockdown, initiation of online classes, the drawbacks and the benefits of online learning, and the problems one can face while studying without proper interaction with teachers and peers. It is definite that everyone who experienced this pandemic will have a different view for the online mode of learning, this project is the best way to collect everyone's experience and bring it in front of us.

§3 Literature Review

This section proceeds along keeping the objective of the study in view. On 31 December 2019, WHO was informed of cases of pneumonia of unknown cause in Wuhan City, China. A novel coronavirus was identified as the cause by Chinese authorities on 7 January 2020 and was temporarily named "2019-nCoV".

Coronaviruses (CoV) are a large family of viruses that cause illness ranging from the common cold to more severe diseases. A novel coronavirus (nCoV) is a new strain that has not been previously identified in humans. The new virus was subsequently named the "COVID-19 virus".

The coronavirus disease (COVID-19) pandemic has caused an unprecedented crisis in all areas. In the field of education, this emergency has led to the massive closure of face-to-face activities of educational institutions in more than 190 countries in order to prevent the spread of the virus and mitigate its impact. The Economic Commission for Latin America and the Caribbean (ECLAC) has argued that even before the pandemic hit, the social situation in the region was deteriorating, owing to rising rates of poverty and extreme poverty, the persistence of inequalities and growing social discontent. In this context, the crisis will have a profoundly negative impact on the various social sectors, particularly health and education, as well as on employment and poverty. Meanwhile, UNESCO has identified major gaps in educational outcomes, which are related to the unequal distribution of teachers in general, and of the best qualified teachers in particular, to the detriment of lower-income countries and regions and of rural areas, where indigenous and migrant populations tend to be concentrated.

In the sphere of education, many of the measures that the region's countries have adopted in response to the crisis are related to the suspension of face-to-face classes at all levels, which has given rise to three main areas of action: the deployment of distance learning modalities through a variety of formats and platforms (with or without the use of technology); the support and mobilization of education personnel and communities; and concern for the health and overall well-being of students.
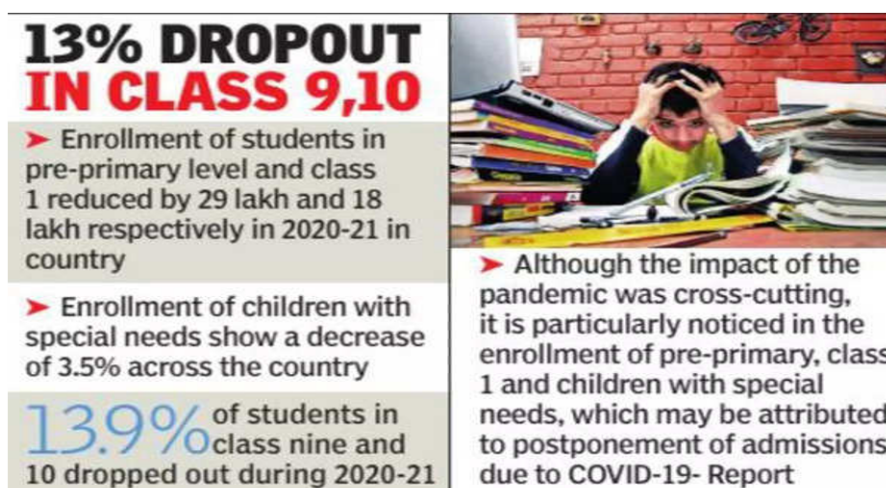
- The COVID-19 has resulted in schools shut all across the world. Globally, over 1.2 billion children are out of the classroom.

- As a result, education has changed dramatically, with the distinctive rise of e-learning, whereby teaching is undertaken remotely and on digital platforms.

- Research suggests that online learning has been shown to increase retention of

information, and take less time, meaning the changes coronavirus have caused might be here to stay.
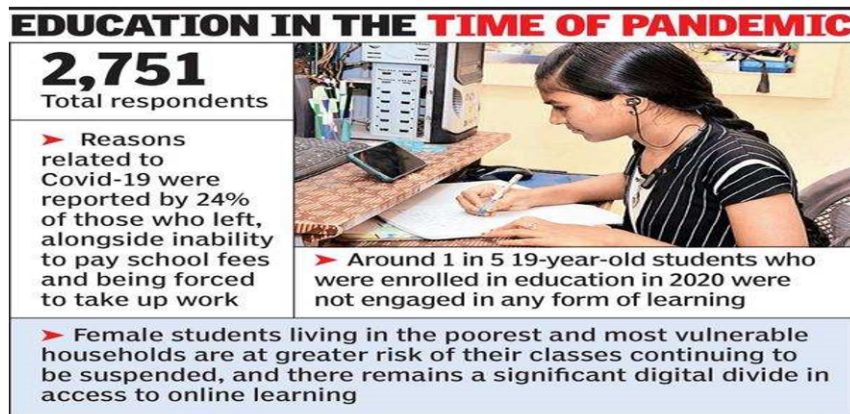
The aim of this document is to shed light on various consequences that these measures will have on educational communities in the short and medium term, and to offer key recommendations on how to manage those consequences in the best possible manner, drawing attention to opportunities for learning and innovation in the post-pandemic education system.

§4 Methodology

This section is devoted to the discussion of the methods that are put into use for the present study. Method provides the direction of the study. It sets the 'why' and 'how' of the research problem. In other words, this section highlights why this topic is selected and how the study is carried over.

We all know the sudden outbreak of a deadly COVID – 19 caused by a corona Virus (SARS-CoV-2) shook the entire world. It has affected people regardless of nationality, level of education, income or gender. But the same has not been true for its consequences, which have hit the most vulnerable hardest. Education is no exception. This crisis has exposed the many inadequacies and inequities in our education systems – from access to the broadband and computers needed for online education, and the supportive environments needed to focus on learning, up to the misalignment between resources and needs.

India is the second most impacted country in the world after the United States but with far fewer recorded deaths. Around 32 crore learners stopped to move schools/colleges and all educational activities halted in India. We felt curious to know the impact of the pandemic on higher education in India. Hence, we opted for this topic as the area of the present study. With this aim in view, we started collecting data. In addition to a literature review, we also involved case study. For this case study, we framed some relevant questions that we wish to ask our informants and interviews were held in June 2022 and reflect the experience of students up to this date.

The conversations provided opportunities to discuss the lessons learned and what remains to be done. We also relied on secondary data in order to obtain information related to the proposed study as it was not be possible for us to collect primary data on the area within such a short time period. It is relevant to point out that secondary data are such statistical information which have already been collected by someone for his own purpose and now are available for use by others for their purposes. "Numerical data which are not gathered directly from the field of enquiry, but are merely compiled by other sources, are referred to as secondary data" (Das, NG: 2006). The chief sources of such data can be official publications of State or Central governments, international publications, journal papers and magazines, etc.

For the present work, we collected data from the articles published by UNICEF, WHO and various other publication sites. All these data have been collected by them with the help of statistical tools and quantitative methods. We, in order to observe the impact of COVID - 19, selected few relevant data from these sources that would serve our purpose. We accessed data, keeping the issue of their availability in mind. In some cases, however, in order to get a more thorough insight of the situation qualitative techniques like focus group discussion or case studies have been undertaken. After going through the data that we collected and secondary data, the next task was to analyse these relevant details . In conclusion, we attempted to provide a summary of our observations and some recommendations and suggestions in view of the pandemic.

The main objectives of our study are:

1. To assess the rise and origin of deadly coronavirus.

2. To which extent the deadly virus laid down cascading effect on education in India.

3. To portray as to what extent the virus has affected the students.

4. To recommend some measures.

§5 Data Analysis

Sl. No.	Name	How did the pandemic affect your education?	How did you cope up with the stress due to online learning ?	What is your opinion about online and offline classes?
1	Aman Aryatosh	It affected a lot.	For coping up with the stress due to online learning one needs to study which I didn't do apparently.	Offline classes are way more better than online classes according to my opinion.
2	Shreya Mukherjee	It had a negative effect on my education. Stuck within the walls of our homes, unable to go to schools, coaching etc. social interaction with peers and teachers became negligible.	I would sit and talk to my family and I love cooking so I would make different dishes for my family and occasionally meditate because meditation always helps.	Online classes have become a need in today's time but no matter what it could never be as good as offline classroom education. The healthy student-student and student-teacher interaction is an absolute necessity.

| 3 | Anusha Bannerjee | Surprisingly, the pandemic had a positive effect on my education because I got a lot more time to study. I was able to plan my day efficiently and study for long periods of time without getting physically exhausted. | Overall, online learning didn't stress me out. I made time to read books, write, draw, sing and listen to music. | Offline classes are much better than online classes for obvious reasons, like meeting people, improving concentration towards studies, and having no negative effect on the health of our eyes. |
| 4 | Niveditha E. | The education system changed to online, badly affected health due to long screentime, Missed learning process, book reference and group discussions. | Did my favourite hobbies like dancing and singing. | Offline classes are the best option for education as it allows us to interact with our friends and take studies more enjoying. |

| 5 | Sriparna Barman | For the pandemic, I had to face online classes for the first time which became very hectic for me. Attending online classes made me mentally tired affectedected my education. | After classes I used to spend my time in the garden listening to soulful music. I used to follow my passion which kept me better when the day was hectic. | Online classes save enough time for the students. But we can't explore the lab and do experiments through this, also it effects our eyes. In offline education , we can clear our doubts easily without any network issues. |

| 6 | Deepshikha Singh | An adverse affect on me was like headache eye pain and also due to online classes I don't concentrate that much in the class that usually happens in offline classes. But there was a good thing as well I my technical skills got better, also I got introduced with many new areas I learnt many new things. | To cope up with my stress I always spend time with my parents and family members. They always gives me the advice to be calm, I played games I learnt many new things like i learnt sketching, crafting and such things. | In online classes we interact with teachers friends we develop our concepts more effectively but at the same time we get less time to do other things in which we are interested. On the other hand during online classes, we are not that much active but we usually have much more time that we can utilise for self improvement. |

7	Tanvi Shirude	The main thing that got affected for me was verbal communication and discussions with professors and batchmates. Also mental stress got affected to a certain extent.	Stress handling was done by spending quality time with near and dear ones and immersing in leisure activities that gives you happiness and satisfaction.	Online classes doesn't provide you with sufficient ambience to study with focus unlike offline classes .it is always better to study in offline mode with books and no eye strain .
8	Harsh Singh	Lack of peer-to-peer interaction. I used to learn a lot by interacting with friends.	Playing board games with parents and reading novels.	Lack of ambience in online classes is detrimental to study as it reduces focus. I feel sleepy a lot more in online classes than in offline classes. Moreover, online classes are less interactive. It feels like information is thrusted upon me rather than imparted upon me.

9	Diptyadeep Sarkar	Well...I stopped studying...so that's a thing ....got addicted to watching movies, youtube, web series, listening to radio and board exams were close by so tension started to rise by slowly, tuitions stopped due to excessive rate of spreading of the disease and studying kind of became a myth for my life.... temporarily that is. 11	I didn't actually. You can see the dark circles hovering beneath my eyes for a reason you know. Harsh reality of knowing that the exams are coming and that I still have unfinished syllabus just feels like shit. So I started sketching again after a long time, got kinda into chess after like what maybe like 5,6 years? Yeah probably something like that.	Offline class was kind of what we were used to all these years so, it felt normal even though we were wasting so much time going to required places attending every single classes cause we had to. That's what felt instinctually right and also yeah, the attendance thingy. We didn't get that much time to self-study and understand concepts by ourselves but offline classes gave us a clear view and help of the classes and chapters directly from the teachers. In the case of online classes we don't have to go through exceptional ordeals of going to schools or jobs or offices and save so much time

| 10 | Vaibhavi Dhananjay Pandav | There was no such environment for studying as well as lack of motivation. | I overcame stress through therapy. | In online classes we can learn at our own pace, though there is no ample interaction with the instructor. For offline classes, they are better overall as they reduce the screen time. |
| 11 | Abhilash Saha | The pandemic had an overall positive impact on my education because I didn't spend time in school and got a lot of time for self-study. Online classes were not a matter of inconvenience for me. | Visited a psychiatrist, got diagnosed with anxiety and had to take medication. Also, started learning the guitar. | Both have their pros and cons. More natural interaction in offline mode, lesser stress. Flexible schedules in online mode. Personally prefer offline classes. |

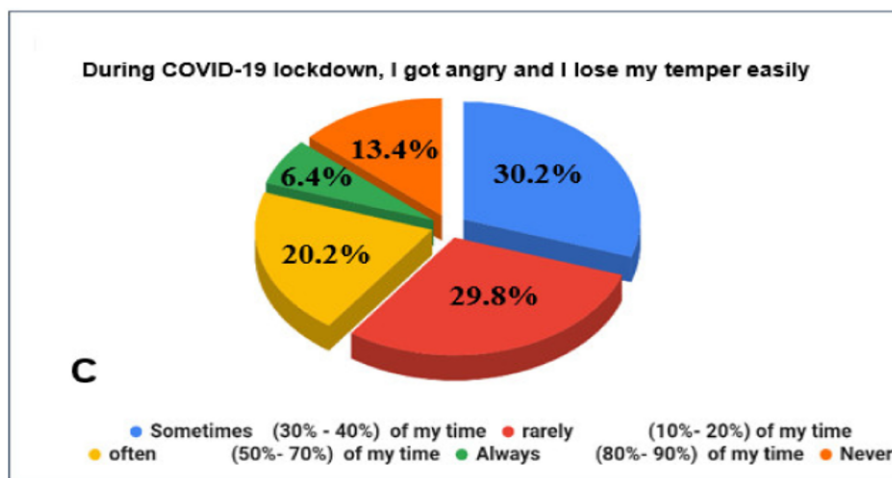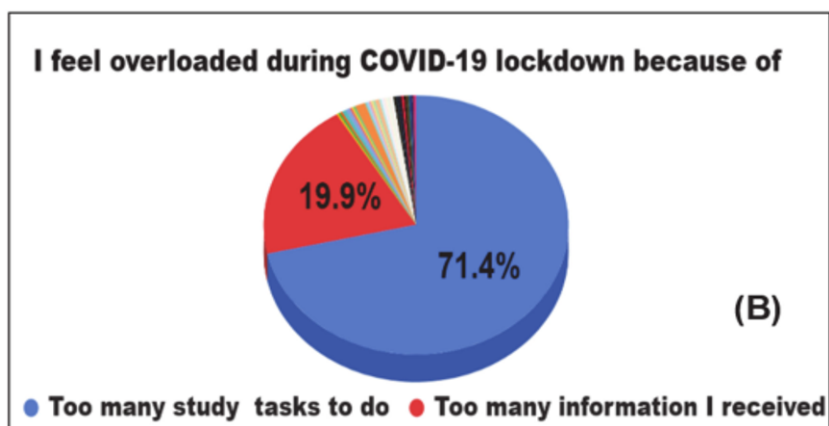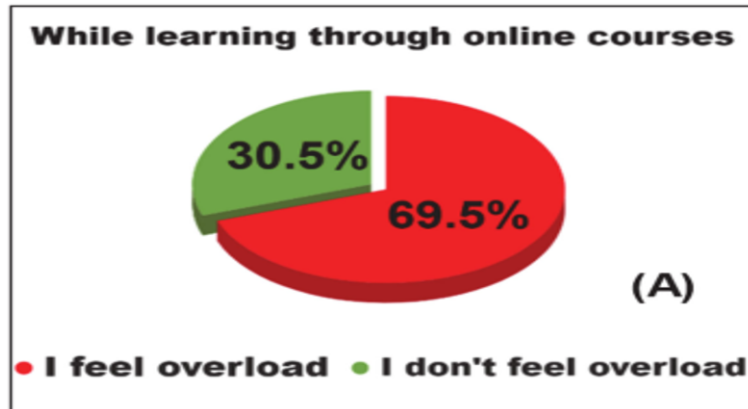| 12 | Priyanshu Mahato | It has affected my education in multiple ways, both positive and negative. Although it has increased my screentime drastically and increased the use of social media, it has also given me the freedom to study anywhere and anytime I want. It has provided me with the freedom to watch lectures not only anytime I want, but also as many times I want, which clearly won't be possible while everything was going offline. | I didn't cope up with the stress, cause it was the stress that kept me going and pushed me to study harder. Coal turns into diamond only under critical stress conditions! | Online classes are exhausting, but for people who have the required dedication and commitment, it works equally fine. Offline classes, on the other hand work good for almost everyone. |

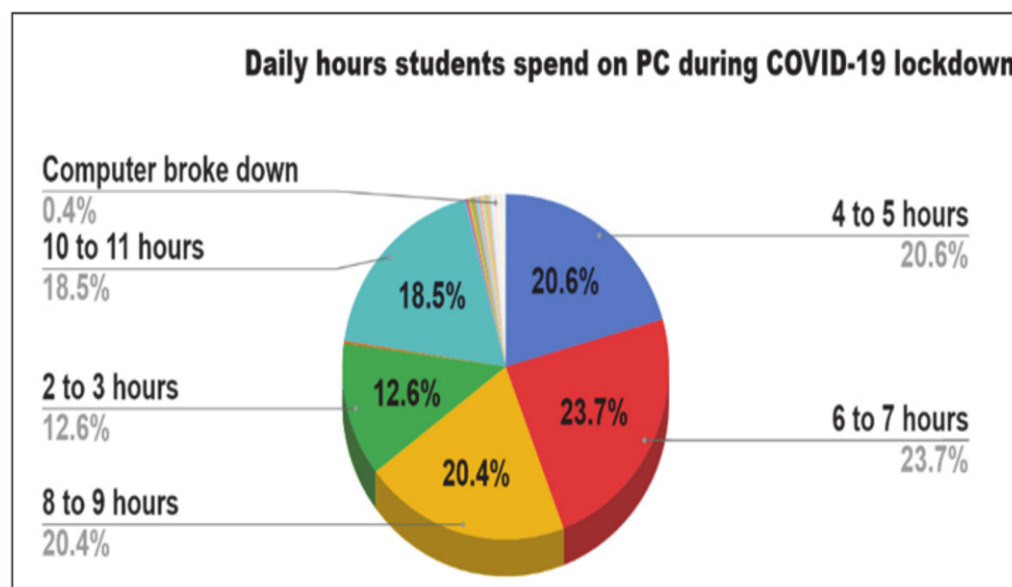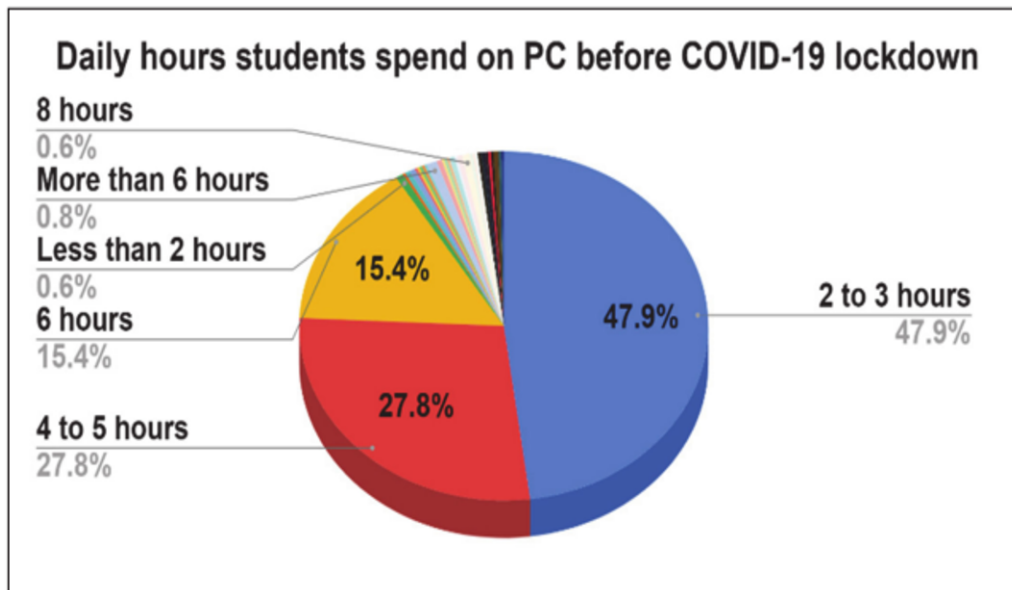| 13 | Kaustav Roy | I was stuck in my home with my family members all along, minimal traffic noises, playing games with family and sharing household chores, I can basically say i had the time of my life. That's the good side but apart from that my father is also a covid frontline worker so there was always some danger dangling around. | I just skipped classes for a day or two and then everything went back on track. | Offline classes are far far better than online classes, not only for learning, but also for making friends and all. I miss the days when we used to sit on the last bench to have lunch, intentionally disturb our teacher and what not. |

| 14 | Tanish Dheeraj Nimbalkar | In offline learning we are compelled to study even if we don't want to when we see our peers studying. This turns out to be good for us in the future. Online learning doesn't feel as serious due to lack of interaction and we end up not focusing on studies. This turns out to be bad in the future leading to regret. | I coped up with stress by listening to music, watching s hows/movies and playing video games which results in more back logs and thus more stress in the future resulting in a positive feedback loop. | Offline classes offer higher interaction with the teacher as well as friends creating a much healthier learning environment whereas online classes offer us more freedom and can enable some students perform better by allotting more/less time to certain subjects as they feel needed. |

15	Anunay Chandra	During the pandemic time my focus shifted more towards gaming and sleeping... my sleep schedule got messed up and I also stopped studying and not attending any classes online became my new normal...that proved to be highly detrimental to my individual academic progress...still I want to live the same life again.	For me, the stress due to classes was only up to a certain point of time after which I figured out that abandoning the classes completely will be excellent decision for me... after which I was able to devote all my time to self study once a week and spend the rest of my time eating, sleeping and wasting my time... so there wasn't much left to worry about.	Online classes are absolutely garbage... offline classes were excellent but the teachers weren't...in online classes students can refresh themselves amid the boring lectures and also find joy in learning from genuinely educated teachers... in contrast online classes I have attained expertise in googling stuff and a coordinated team work during exams... I even developed a new skill of answering the test without even knowing what the questions mean or ask for...but yeah, offline classes were better.

§6 Limitations of the study

As the time limit given to us for this analysis was not sufficient to analyse the impact of the covid on education. So, we have collected views of 1st-year IISER K students. Our data analysis is only restricted to IISER K as we were not able to travel to different places. As this much amount of data collection will not provide us with sufficient information for the survey, we have collected some secondary data to have a clear view about the actual condition.

Daily hours students spend on PC before COVID-19 lockdown

Daily hours students spend on PC during COVID-19 lockdown

§7 Conclusion

As policymakers and educators prepare to restart schools in the midst of the COVID-19 pandemic, it is imperative that we transform our ideas of school to match the demands of this historic moment. It is clear that returning to business as usual in education is not possible and that we must think of "school" in deeply different ways. Irrespective of the approach taken to instruction or the medium through which it takes place—online, in person, or a hybrid—policymakers and educators need to ensure that all children, regardless of income, can participate in supportive and meaningful learning experiences.

This report provides an overarching framework to inform the restart of schools for the 2020–21 school year while also providing a long-term vision that can guide leaders toward new and enduring ways to address educational quality and inequity. Building upon other student-centred, equity-oriented guidance that has been developed, this framework synthesizes key ideas, evidence, state and local examples, and policy recommendations and organizes them within a broader framework focused on authentic learning and equity and grounded in research spanning early childhood through secondary schooling. It is our hope that this work will help enable state, district, and school leaders along with educators to seize this moment to strengthen learning opportunities and close opportunity and achievement gaps.

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