



DECODING THE IMPACT OF COVID-19 PANDEMIC ON EDUCATION SYSTEM: A REVIEW

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ABSTRACT

The COVID-19 pandemic is first and foremost a health crisis. The petrifying and severe impact of COVID-19 has shaken the world to its core. The COVID-19 pandemic has affected educational systems worldwide, leading to the near total closures of schools, colleges and universities. Most governments around the world have temporarily closed educational institutions in an attempt to contain the spread of COVID-19. The closure of educational institutes impact not only students, teachers and families but have far-reaching economic and societal consequences. The closure of educational institutes in response to the pandemic have shed light on various social and economic issues, including student debt, digital learning, food insecurity, and homelessness as well as access to childcare, health care, housing, internet and disability services. The impact was more severe for disadvantaged children and their families causing interrupted learning, compromised nutrition, childcare problems and consequent economic cost to families who could not work. The global lockdown of education institutions is going to cause major (and likely unequal) interruption in students' learning; disruptions in internal assessments; and the cancellation of public assessments for qualifications or their replacement by an inferior alternative.

KEYWORDS: COVID-19, Pandemic, Childcare, Healthcare, Food insecurity, Digital learning

The petrifying and severe impact of COVID-19 has shaken the world to its core. Further, most of the Governments around the world have temporarily closed educational institutions in an attempt to contain the spread of the COVID-19 pandemic. In India too, the government as a part of the nationwide lockdown has closed all educational institutions, as a consequence of which, learners ranging from school going children to postgraduate students, are affected. Efforts to stem the spread of COVID-19 through non-pharmaceutical interventions and preventive measures such as social-distancing and self-isolation have prompted the widespread closure of primary, secondary and tertiary schooling in over 100 countries. The COVID-19 pandemic is first and foremost a health crisis. Many countries have rightly decided to close schools, colleges and universities. The crisis crystallises the dilemma policymakers are facing between closing schools (reducing contact and saving lives) and keeping them open (allowing workers to work and maintaining the economy). The severe short-term disruption is felt by many families around the world: home schooling is not only a massive shock to parents' productivity, but also to children's social life and learning. Teaching is moving online, on an untested and unprecedented scale. Student assessments are also moving online, with a lot of trial and error and uncertainty for everyone. Many assessments have simply been cancelled. Importantly, these interruptions will not just be a short-term issue, but can also have long-term consequences for the affected cohorts

and are likely to increase inequality. Previous outbreaks of infectious diseases have also prompted widespread school closings around the world, with varying levels of effectiveness (Simon, 2020) (Barnum, 2020) (Frieden, 2020).

These nationwide closures are impacting over 91% of the world's student population. Several other countries have implemented localized closures impacting millions of additional learners. UNESCO is supporting countries in their efforts to mitigate the immediate impact of school closures, particularly for more vulnerable and disadvantaged communities, and to facilitate the continuity of education for all through remote learning. The UNESCO report estimates that the coronavirus pandemic will adversely impact over 290 million students across 22 countries. The UNESCO estimates that about 32 crores students are affected in India, including those in schools and colleges.

Nevertheless, Covid-19 has prompted experts to rethink the conventional mode of education. Digital education appears to be a viable solution to fill in the void for classroom education for a period of three to four months while minimizing the chances of any infection to students until classes resume. More importantly, it has also brought the hitherto peripheral issue of digital education in India to the centre stage. Going forward, digital education is likely to be integrated into mainstream education. This will enable inclusive education by facilitating learning across diverse

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geographies in India. Moreover, it will provide an opportunity for educators to come up with customized learning solutions for every student.

A complete revolution in the way we learn today has been brought about by Technology. Each student gets in contact with a world-class education, which is not easy to impart by the traditional white chalk and blackboard method of teaching. This new learning is more interesting, personalized and enjoyable. A massive open online course (MOOC) is an online course aimed at unlimited participation and open access via the web. India is considered to be the biggest market for MOOCs in the world after the USA. Since the population of India is huge, massive open online course (MOOC) is said to open gateways for a lot of Indians in terms of bringing an educational revolution. Online distant learning programs give a great opportunity to avail high quality learning with the help of internet connectivity.

Digital learning has many advantages in itself like digital learning has no physical boundaries, it has more learning engagement experience rather than the traditional learning, it is also cost-effective and students get to learn in the confines of their comfort zone. However, digital learning is not without its limitations and challenges, since face-to-face interaction is usually perceived as the best form of communication as compared to the rather impersonalized nature of remote learning. Globally, online education has met with some success. In the case of India, we still have a long way to go before digital learning is seen as mainstream education, because students living in urban area have the facilities to opt for digital education, however, rural area students do not have the required infrastructure nor are financially strong to avail the resources required for digital education. Building of the digital education infrastructure by the Government of India presently appears to be difficult due to lack of budget. Further, even if the digital infrastructure is built, training has to be given to the teachers to use the digital system to provide authentic and proper, uninterrupted and seamless education to the students. Remote learning increasingly relies on the reliable power supply and ubiquitous Internet connectivity which might be a far-fetched thing for Tier 2 and Tier 3 cities in India.

Another challenge is that e-learning comes across as somewhat patchy and impersonal experience. Also, e-learning is likely to witness a high dropout rate due to the lack of atmosphere for studying. Students might tend to get distracted by gaming consoles, social media at home and might not feel a sense of community while taking online classes. Successful delivery of education is also in question because learning at the level of higher education and learning at the kindergarten/school level can be different. Digital education cannot be applied the same at every level of the education.

If we further up the light on the educational material, digital education will have a limited scope as compared with the written and handy material which is provided in an educational institute. Moreover, the authentication of the educational material is at stake. E-learning will always provide the students with different information in different ways. So, the authenticity of the educational material should be tested before these materials are circulated with the students. Creation of content, dissemination of content and evaluation of content should be done. Blended education has to come face to face and distance education should go hand in hand currently. Educational data circulated in online should be properly maintained. Because ultimately these digital educational course classes will also lead to hacking systems and intruders coming in. The digital safety challenge will remain at large while imparting education.

Due to the outbreak of the pandemic, the work from home (WFH) culture is booming in India. As social distancing is prescribed as the best way to curb the spread of COVID 19, companies are faced with an unprecedented challenge of ensuring it is business as usual even if everyone is working remotely. Therefore, not only businessmen or start-ups in India have opted for an online platform like Zoom App to stay connected with their employees who are working from their homes but also the educational institutions have opted for different digital platforms to facilitate learning for their students. However, only educational institutions in urban areas can provide those facilities. Again the questions are raised for the learners in rural areas, the educational systems in rural areas and their growth. With so many different ways to define e-learning and the educational approaches that can be taken in these learning environments, many colleges and extra curriculum activity classes have started making use of the technology. Through applications such as Zoom, various colleges especially engineering and designing colleges of Pune have undertaken the task of educating students through video conferencing. Undeterred by the security concerns which such video conferencing applications may pose, these applications are widely used and have proved to be beneficial and with a lot of advantages. There is picture, sound clarity which makes imparting of knowledge and learning effective for both the instructor and the student.

IMPACT ON EDUCATION: SCHOOLS

Going to school is the best public policy tool available to raise skills. While school time can be fun and can raise social skills and social awareness, from an economic point of view the primary point of being in school is that it increases a child's ability. Even a relatively short time in school does this, even a relatively short period of missed school will have consequences for skill growth. But can we estimate how much the COVID-19 interruption will affect learning? Not very precisely, as

we are in a new world but we can use other studies to get an order of magnitude.

Two pieces of evidence are useful. Carlsson *et al.* 2015 consider a situation in which young men in Sweden have differing number of days to prepare for important tests. These differences are conditionally random allowing the authors to estimate a causal effect of schooling on skills. The authors show that even just ten days of extra schooling significantly raises scores on tests of the use of knowledge (crystallized intelligence) by 1% of a standard deviation. As an extremely rough measure of the impact of the current school closures, if we were to simply extrapolate those numbers, twelve weeks less schooling (i.e. 60 school days) implies a loss of 6% of a standard deviation, which is non-trivial. They do not find a significant impact on problem solving skills (an example of fluid intelligence).

A different way into this question comes from Lavy, 2015 who estimates the impact on learning of differences in instructional time across countries. Perhaps surprisingly, there are very substantial differences between countries in hours of teaching. For example, Lavy shows that total weekly hours of instruction in mathematics, language and science is 55% higher in Denmark than in Austria. These differences matter, causing significant differences in test score outcomes: one more hour per week over the school year in the main subjects increases test scores by around 6% of a standard deviation. In our case, the loss of perhaps 3-4 hours per week teaching in maths for 12 weeks may be similar in magnitude to the loss of an hour per week for 30 weeks. So, rather bizarrely and surely coincidentally, we end up with an estimated loss of around 6% of a standard deviation again. Leaving the close similarity aside, these studies possibly suggest a likely effect no greater than 10% of a standard deviation but definitely above zero.

IMPACTS ON EDUCATION: FAMILIES

Perhaps to the disappointment of some, children have not generally been sent home to play. The idea is that they continue their education at home, in the hope of not missing out too much. Families are central to education and are widely agreed to provide major inputs into a child's learning, as described by Bjorklund and Salvanes (2011). The current global-scale expansion in home schooling might at first thought be seen quite positively, as likely to be effective. But typically, this role is seen as a complement to the input from school. Parents supplement a child's maths learning by practising counting or highlighting simple maths problems in everyday life; or they illuminate history lessons with trips to important monuments or museums. Being the prime driver of learning, even in conjunction with online materials, is a different question; and while many parents round the world do successfully school their children at home, this seems unlikely to generalise over the whole population.

So while global home schooling will surely produce some inspirational moments, some angry moments, some fun moments and some frustrated moments, it seems very unlikely that it will on average replace the learning lost from school. But the bigger point is this, there will likely be substantial disparities between families in the extent to which they can help their children learn. According to Oreopoulos *et al.*, (2006) key differences include the amount of time available to devote to teaching, the non-cognitive skills of the parents, resources (for example, not everyone will have the kit to access the best online material) and also the amount of knowledge, it's hard to help your child learn something that you may not understand yourself. Consequently, this episode will lead to an increase in the inequality of human capital growth for the affected cohorts.

ASSESSMENTS

The closure of schools, colleges and universities not only interrupts the teaching for students around the world but the closure also coincides with a key assessment period and many exams have been postponed or cancelled.

Internal assessments are perhaps thought to be less important and many have been simply cancelled. But their point is to give information about the child's progress for families and teachers. The loss of this information delays the recognition of both high potential and learning difficulties and can have harmful long-term consequences for the child. Andersen and Nielsen (2019) look at the consequence of a major IT crash in the testing system in Denmark. As a result of this, some children could not take the test. The authors find that participating in the test increased the score in a reading test two years later by 9% of a standard deviation, with similar effects in mathematics. These effects are largest for children from disadvantaged backgrounds.

Importantly, the lockdown of institutions not only affects internal assessments. In the UK, for example, all exams for the main public qualifications namely GCSEs and A levels have been cancelled for the entire cohort. Even in India, different exams at Undergraduate level and postgraduate level including in the Jammu and Kashmir have been cancelled and postponed. Depending on the duration of the lockdown, similar actions will be observed around the world. One potential alternative for the cancelled assessments is to use 'predicted grades', but Murphy and Wyness (2020) show that these are often inaccurate, and that among high achieving students, the predicted grades for those from disadvantaged backgrounds are lower than those from more advantaged backgrounds. Another solution is to replace blind exams with teacher assessments. Evidence from various settings show systematic deviations between unblind and blind examinations, where the direction of the bias typically depends on whether the child belongs to a group that usually performs well (Burgess and Greaves, 2013)

(Rangvid, 2015). For example, if girls usually perform better in a subject, an unblind evaluation of a boy's performance is likely to be downward biased. Because such assessments are used as a key qualification to enter higher education, the move to unblind subjective assessments can have potential long-term consequences for the equality of opportunity.

It is also possible that some students' careers might benefit from the interruptions. For example, in Norway it has been decided that all 10th grade students will be awarded a high-school degree. Maurin and McNally (2008) show that the 1968 abandoning of the normal examination procedures in France (following the student riots) led to positive long-term labour market consequences for the affected cohort.

In higher education many colleges and universities are replacing traditional exams with online assessment tools. This is a new area for both teachers and students and assessments will likely have larger measurement error than usual. Research shows that employers use educational credentials such as degree classifications and grade point averages to sort applicants (Piopiunik *et al.*, 2020). The increase in the noise of the applicants signals will therefore potentially reduce the matching efficiency for new graduates on the labour market, who might experience slower earnings growth and higher job separation rates. This is costly both to the individual and also to society as a whole (Fredriksson *et al.*, 2018).

GRADUATES

The careers of this year's university graduates may be severely affected by the COVID-19 pandemic. They have experienced major teaching interruptions in the final part of their studies, they are experiencing major interruptions in their assessments and finally they are likely to graduate at the beginning of a major global recession. Evidence suggests that poor market conditions at labour market entry cause workers to accept lower paid jobs and that this has permanent effects for the careers of some. Oreopoulos *et al.* [8] show that graduates from programmes with high predicted earnings can compensate for their poor starting point through both within and across firm earnings gains, but graduates from other programmes have been found to experience permanent earnings losses from graduating in a recession.

CONCLUSION

The global lockdown of education institutions is going to cause major (and likely unequal) interruption in students' learning, disruptions in internal assessments and the cancellation of public assessments for qualifications or their replacement by an inferior alternative. What can be done to mitigate these negative impacts? Schools need resources to rebuild the loss in learning, once they open again. How these resources are used, and how to target

the children who were especially hard hit, is an open question. Given the evidence of the importance of assessments for learning, schools should also consider postponing rather than skipping internal assessments. For new graduates, policies should support their entry to the labour market to avoid longer unemployment periods.

It is not only just the question of imparting continuous and uninterrupted learning during the outbreak of COVID 19 pandemic but also the most important challenge for the instructor is to focus on the overall elements of a well-developed course. Developing a purposeful and well-defined online course, which supports the instructor and learner, means devoting the appropriate time and embedding the applicable course elements into the e-learning environment. Through the use of technology, we can, if not provide a strong alternative to the conventional education system, mitigate and compensate for the impediments posed and inconvenience caused due to COVID-19 pandemic to the education system and learners by extension. Learning, as they say, is a continuous and ever-evolving process. The educational institutions in India, from schools to universities, can use this present adversity as a blessing in disguise and make digital education a major part of the learning process for all learners in the future.

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