



EDUCATION BEFORE, DURING AND AFTER THE COVID-19 PANDEMIC AND THE IMPACT OF THE EDUCATION

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Abstract

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. This column discusses what can be done to mitigate these negative impacts. The present context of the COVID-19 pandemic is one of the representatives of those situations that is forcing us to start a new beginning in both; our ways of living and getting an education. Here, in this essay, we are situating the context of education before, during, and after this coronavirus pandemic, thereby introducing some of the emerging educational practices which help us overcome this challenge and create a new future.

Introduction

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.

Objectives of the Study

- To discuss the educational system and its sustainable performance before, during and after Pandemic.
- To explore the impact of education system after the pandemic.

Before Covid-19

The education systems worldwide always met certain criteria when it came to delivering and conducting educational standards. Constructing a favourable environment for the overall well-being and development of a student was the intention behind building schools and universities. To an extent, this idea was successful where an individual is unknowingly nurtured with social and interpersonal skills. Often, schools are renamed to be a 'second home' as students spend most of their time apart from home at a school and university. Teachers were bearing an immense responsibility for teaching lessons along with moral values. There was a routine, the system of education brought into a student's life. A schedule to meet every day and learn from and outside books. A child is known to develop most of their behaviours in educational institutions and at home itself. Schools were playing a crucial role in providing health services and meals along with psychological support (The World Bank, 2021). Even though there were immense opportunities for guidance and enlightenment from universities they have



taken a back seat as the competition and business mentality in education started sprouting. Until the COVID-19 pandemic, everyone and every university aimed to develop a continuously achieving student community. In this race, the importance of values and humanitarian concerns were neglected. Indirectly, the students were brought up to compete, aim for the first position, and care less for others. This embarked on a selfish and opportunistic future generation.

During Covid-19

A place to attend every day as a routine was shut down indefinitely. At this phase parents, and caregivers took up the role of home-learning helpers to support the new technological advancements (Bhula & Floretta, 2020) The initial phase was confusion and anxiety. No one knew how to face this as it had never happened or was anticipated to occur. Eventually, simultaneously when the whole world was falling apart with losing lives humans carved out methods to continue the academic year without delay. It was endless nights, days of work, and meetings to decide on a solution. There was no cessation for learning, teaching, and assessment as the solution included plans using an online digital interface (Rapanta et al., 2020). The teachers and professors with great generation gaps and technologically not advanced countries came up with a mission to deliver knowledge within the boundaries marked by authorities. The parents, teachers, and students faced various types of difficulties. As mentioned, technology was only an added aid for teaching, but it was during this pandemic it took a front seat to delivering and accessing the knowledge. Each country had its own battle from providing the necessary appliances for studies like computers, phones, and tablets to the internet. The rural areas with poor development the implementation of solutions was difficult. During this period, many people started helping each other out with no expectations or return favors. The support every person was showing towards every individual in any stuck situation was very evident. Nations came together to help poor countries and the moral values that took a back seat before were ignited. When the teachers studied to use the advanced and sophisticated internet for daily teachings and students were grasping the developments along with guidance from parents created a deeper understanding of the scenario as they were witnessing it. Instead of taking their children side only parents seeing the struggle each professor puts in to provide a lesson made them realize their ward's strengths and weaknesses. Universities had come up with various methods of hybrid learning techniques like the Hyflex model which combined face-to-face and online learning. It was a complete student's choice to prefer either option, but it created a disrupted experience from the cohort setting and being part of one class (Meydanlioglu & Arikan, 2014)

After Covid-19

The most awaited news about the reopening of schools and universities had brought back a sense of relief for exhausting online classes were with college students keeping a monitor on them was not possible as they knew better how to trick the professors. It is mandatory to understand the barriers students faced during the pandemic (Beatty, 2019). The advanced use of gadgets was reduced to only necessary times, and it had harmful effects on their physical and mental state. The communication skills especially among smaller students had to be re-initiated as they felt anxious meeting new people. Still, the convenience of various meetings is continued with zoom calls and assessments submissions online. The criteria for assessing knowledge were based on examinations score but after COVID-19 the guidelines have started to assess overall performance and not completely on one exam. A break from schools, colleges, and institutions has been a negative experience for some as not all students fit into one method of teaching, but some found it much more convenient and productive.



Technology Enhanced Learning

This COVID-19 context has taught us to conduct educational activities using ICTs tools, techniques, and methodologies. Whatever the pandemic maybe, online education was the least affected platform of getting an education. However, this became an easy way out for most of the university education. The school education (more of basic education) was affected the most. But teachers got opportunities to develop their knowledge and skills of ICTs and their implementation in the education system. People, to some extent, understood the importance of ICTs integration in learning.

This era of learning is complemented by industrial revolution 4.0 which encompasses the development of advanced science and technologies including Artificial Intelligence (AI), Machine Learning (ML), Deep Learning (DL), Data Science (DS), Robotics, and like. Learning is aligned with the Internet of Things (IoT) to get information and apply those in the context of learning. In the similar vein, 'n' numbers of online and offline computer-based, mobile-based, etc. software and applications have been developed to support learning (Dahal & Pangei, 2019). The use of these technologies makes learning fruitful and lively. These are putting life in the concepts so that learners interact and perceive those concepts conceptually (Selwyn, 2020).

In the post-COVID-19 context, the usage of ICTs in education should be in the focus. For this, the participatory approach of teaching and learning should be implemented so that teachers and students learn things and develop skills collaboratively. Similarly, the professional development programs should be in the center of the teachers' profession that empower teachers and others to equip with the knowledge and skills of emergent tools and techniques to use in their culture of teaching and learning. Not only this, but teachers should also be provided with knowledge and skills about managing these materials to help their students learn concepts holistically. This helps in creating representations of knowledge, supporting performance and decision-making, and enabling personalized learning. In the post coronavirus context, educational programs should focus on the following aspects:

1. AI Activities for Teachers and Educators
2. Understanding of some of the phenomenal Programming Languages (Python, Scratch, R, etc.)
3. Knowledge and skills of Learning Management System (LMS)
4. Knowledge and skills of designing and creating modeling through ICTs
5. Knowledge and skills of simulations through ICT tools and designing 3D-Printing Activities
6. Knowledge and skills of Graphic Designing in Education
7. Knowledge and skills of Robotics

In addition to this, the assessment process can be done through various ICT tools (applications and software). These tools operate offline as well as online. The Moodle Learning Management System, several Google products (Docs, Forms, Slides, etc.), several quiz-based applications (Quizzes, Polls Everywhere, Survey Monkey, etc.), Google Classrooms, and other classroom platforms, etc. are the most effective platforms to assess students' learning. Through these, the learning can be assessed by facilitators using collaborative and/or individual mode. Facilitators can provide feedback immediately in a real-time setting, or any



other time or they can use the automatic feedback system to provide comments and feedback on the works of their students. Similarly, there are facilities for doing self and peerassessment. The platforms are rich in terms of supporting students in their learning and improvement. This way, assessment procedures can also be done using technologies.

Both students and teachers can enhance other 21st century skills through technology-based environments. YouTube is one of the sources where people can get any kind of information to learn new things. People can learn new things by watching videos. Also, search engines like Google can be another great source of knowledge. There are 'n' numbers of sources to get information. All we need is the time and patience to learn those things. In this context, the post coronavirus pandemic situation should embrace the technology-enhanced learning setting to provide education.

Creativity in Learning

Developing creativity is one of the learning skills under 21st century skills that have to be the focus of education in the post-COVID-19 context. Before this pandemic, the education system of Nepal primarily focused on the left brain or analytical thinking development using a linear model of education (Shrestha, 2018), except for a few examples. This was promoting the logical and analytical thinking skills, learning based on objective nature, and more of verbal abilities development. The activities associated with these practices emphasized controlling the muscles on the right side of the body, controlling language skills, mathematics and logic, speech, intellectual development, and generating reproducible and useful knowledge. The negligence of creativity through the right brain activities has made learning dry or desert (Pant et al., 2020). So, why do we need creativity in learning? This is as simple as that because the activation of the right brain of the human is what makes an individual unique (Sousa, 2016). Creative thinking skills help improve the imagination skills which have the power to think metacognitively, develop generative perspectives, think of the possibilities, and work on them, develop the visual perspectives of everything. This skill improves spatial abilities, facial recognition, visual imagery capabilities, artistic abilities, etc. that are linked with emotions or the heart and values.

We have seen that the education system has lost, to most extent, the learners with a genuine passion for doing work, the desire of creating something innovative, curiosity, the ideation of solutions, the desire to doing hard work, the focus, etc. However, creativity in education embraces these qualities (Kim & Park, 2012). For this, the educational activities should be planned and designed effectively, enabling pedagogical approaches such as project-based learning, inquiry-based learning, activity-based learning, problem-solving methods, context-based learning, etc. Some of the projects; the Garden Project, the Honey Bee Project, the Robotics Project, the Zero Waste Week Project, the Power of Triangle Project, the Smart City Project, the Keep Me Clean projects are phenomenal to start with. These projects are integrated into the STEAM framework of learning. These have to be done by using materials that use all the senses, playing games that use executive functions, converting classrooms into a makerspace, exploring beyond the classroom (the world), reading several fictional and non-fictional literatures, and designing activities that ask key questions, etc.



Moreover, the arts should be central to these concepts. This is in the sense that art is useful for engaging the young brain, developing cognitive, affective, psychomotor, and spiritual dimensions, promoting creativity, advancing social skills, reducing stress and anxiety in learning, improving long-term memory, and making things outstanding and interesting. The integration of arts is required in the post-COVID-19 context to make learners critical thinkers and problem solvers, to develop other transversal skills so as to foster flexibility and adaptability, and other social and cross-cultural skills.

Teacher Education in New Normal

In the context of the COVID-19 context has taught teacher's new approaches and methods that they had not practiced and prepared for. They have learned new and innovative perspectives on teaching and learning. To the most extent, they have been equipped with both knowledge and skills of related to pedagogical and andragogical methods of teaching. They have observed the new practices of teaching and learning happening worldwide. This has made most of the teachers revisit their ways of teaching and reflect upon their pedagogical convictions. As a result, they might have started thinking about making some radical changes in the education system for the post coronavirus context.

Here, we can say that teachers have some enthusiasm and they can make endeavors to improve the way they teach. Maybe the pedagogical and andragogical context will be characterized by some enabling methods including the usage of technological advancements which ultimately aim at solving the problems. However, these are efficient to change our ways of teaching and learning. The more empowering practices should be commenced according to the demand of the context of the world. In this regard, a pertinent question is: how does teacher education help improve the education in post-COVID-19 context?.

In the above discussion, the major focus was on solving real-world problems for a sustainable future. However, this is very challenging in the context of developing countries like Nepal. But we need to start from somewhere. In this context, praxis-based teacher education is one of the methods that can be aligned with pragmatic development in our education system. First, teachers need to be equipped with knowledge and skills. They should have the knowledge and skills of different learning perspectives, abilities to carry out researches, designing, and developing tasks and activities that are real- world focused, abilities to face the challenges and update knowledge and skills according to the context, abilities to create a new future, etc. In this, one of the leading universities in providing quality education, Kathmandu University, is an option which complements the education in the post- COVID-19 context.

The focus of teacher education should be guided by the constructivist and transformative vision of education. With this, teachers will be able to analyze critically their ways of teaching and learning by reflecting upon their experiences, overcome the challenges and work for improvements. In so doing, teacher education needs to provide the knowledge and skills that can solve the problems they are facing in their context of teaching and learning. Similarly, teacher education is anticipated to focus on the participatory approach of research to resolve their contextual problems on their own. This comprises educational action research and participatory action research (PAR) that enable teachers to solve the problems individually or collaboratively by developing the knowledge and skills of research.



Impacts on Education

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.

In the world, most countries have temporarily closed child-cares, nursery, primary and secondary schools, colleges, and universities to control the spread of the COVID-19 pandemic (TUAC Secretariat Briefing, 2020). COVID-19 impacts not only students but also it affects teachers and parents across the world. UNESCO reported that over 1.5 billion students in 195 countries are out of school in the world due to the school closures (UNESCO, 2020b). As (Pujari, 2020) COVID-19 affects all over the education system, examinations, and evaluation, starting of new semester or term and it may extend the school year.

Teachers can support the students' mental health in the following ways

- Listen to children's concerns
- Check how children are doing
- Provide children with accurate information around COVID-19
- Seek suggestions from children on how to create a welcoming, safe and comfortable classroom
- Watch out for any warning signs of child behaviour that interferes with their ability to explore, play and learn
- Encourage play and sports to promote interaction between students
- Model good coping behaviours for students – be calm, honest, and caring
- Take care of yourself and know your limits



Conclusion

The United Nations Educational, Scientific, and Cultural Organization (UNESCO) has prioritized education as the top for peace and sustainable development aiming to solve global challenges through transformative learning, with a special focus on gender equality and Africa across all actions. The Global Education 2030 Agenda specifies equitable quality education and promote lifelong learning opportunities for all (Meinck, Fraillon, & Strietholt, 2022). This pandemic evoked the purpose of education that was lost as the world developed. This reminder would ensure conscious efforts to teach the lessons for achieving a career as well as a valued human being.

The COVID-19 is a pandemic disease caused by a virus that affects the education system of both developing and developed countries. Education is the pillar of every country's development. In the world, most schools, colleges, and universities are closed to control the spread of the COVID-19. The school closure brings difficulties for students, families, and teachers. So, distance learning is a solution to continue the education system. However, distance learning is challenging in developing countries because many parents have not themselves been to school, lack of ICT infrastructures, computers, radio, and television. The poor and digitally-illiterate families with lower educational levels children with poor learning motivation are more suffering in this situation and this increases inequality. Students in most rural areas may be forced to fully support their families in cattle herding and farming. Also, girl students from low-income families and rural areas can be at a higher risk of sexual abuse, and forced labor, and early marriage. The COVID-19 pandemic has made all the educational schools across the world to adopt teaching and learning online. So, governments should scale network infrastructure and internet connectivity across urban and rural areas. The countries should design a strategy to scale educational technology, establish zero-rating educational resources on the internet, prepare digital teaching and learning resources, utilizing free online learning resources, use mobile learning, use radio and television teaching, and grow-up ICT infrastructures. During closures researchers, curriculum designers, education officers, and educational institutions work together to transform the education system. Schools and universities should design curriculum, prepare learning strategies and techniques for post-COVID-19, and transform the education system itself. After COVID-19, the schools and universities design strategies and methods to recover lost portions, ensure children return to school when schools reopen, and scale online learning infrastructures. Finally, the COVID-19 pandemic has been impacting the face-to-face education system of developing countries. Therefore, developing countries should scale online teaching and learning infrastructures.

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