Use of Online Tools in School Education during the COVID-19 Pandemic: A Paradigm Shift

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Abstract

The unexpected turn towards online teaching due to COVID-19 brought many challenges to the education community including school, teachers, students and parents. The abrupt decision to shift from traditional to online teaching confronted teachers and students with an adventitious move, since they were at the forefront. This paradigm shift from a well-established situation to an unprecedented move left many teachers and students with various challenges from not having internet access to getting the proper tools for succeeding despite the limitations of online classes. In most cases, they had to make do with little or no assistance or training. In this study, researchers explored the roles of school, teacher, student and parents during the pandemic, so its findings are also useful for open schooling.

The study explores the following three research questions based on the secondary data:

1. To what extent has the role of school, teachers, students and parents changed in this paradigm shift to online education?

2. What are the various tools available for online teaching activities and online teaching processes which could be adopted by teachers at all levels during and after the pandemic to make the content engaging, interesting and motivating for the learners?

3. To find online teaching activities which should be adopted by teachers in classrooms?

In this theoretical study, we have used various qualitative and quantitative research conducted on online or e-learning. We suggested various tools, pedagogical strategies and impact of the paradigm shift on school, teachers, students and parents. We observed that teachers are often new to technology, hence training in online teaching is essential for them. Online education promotes conceptual understanding and student-centered classes where learners are responsible for their self-directed learning. They are submitting their work, using polling, quizzes, practicing worksheets, and assignments and exploring new things. Various online tools facilitate the teacher to conduct online class, online tests, and to deliver the instructional content. The study also explored parental concerns about their child's physical as well as social health.

Keywords: school education, online learning, paradigm shift, COVID-19 pandemic, onlinetools, role of parents, teachers & students.

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Background

The Indian government mandated a lockdown across the country to break the chain of the spread of the pandemic hence all the educational institutions implemented online education. Many governments stopped face-to-face instruction, thus most of the students, required to switch, almost overnight, to online teaching (Daniel, 2020). Here we cannot neglect the beneficence and popularity of technology. To maintain social distancing which came out to be one of the only preventive measures to control the spread of the coronavirus, unplanned online education was adapted, which meant that in the beginning, most educational communities and parents were novices to technology. But parents followed the suggestions to provide online learning to their children during the lockdown. Sheng-Yi Wu (2021) found teachers and students had to quickly alter teaching methods, regardless of whether or not they were experienced in and prepared for emergency remote education. Some educational institutions provided training to their teachers, but those left untrained faced a struggle to deliver content. Implementing online in such a brief time frame truly puts us all in a dilemma.

The shift of online teaching within a short span of time faced teachers, students and parents with many challenges. One of them is that while we can give knowledge, interesting and innovative content, videos and we can assess our learner, there was a void since there was no way to meet the emotional experience of someone with them to help at any time. Social interactions can't be replicated by technology. Emotions stirred by a physical classroom and a virtual classroom will always remain incomparable. The other challenges are that most teachers, students and parents are novices to technology. In addition, as the learners from primary and secondary classes are young, not self-motivated to study, as they are new to technology, parents have to attend online classes with them (Dong *et al*, 2020). During online learning, continuous support of parents is needed to encourage students for their self-regulated learning.

Paradigm shift in online learning

COVID-19 brought an unprecedented situation to shift the traditional mode of instruction online overnight. Online, digital education turned out to be a solution for mandatory social distancing during COVID-19 lockdown. Open schooling can be considered an alternative mode of online education during and beyond the pandemic. National Institute of Open Schooling (NIOS) is the Board of Education for open schools in India. In open schooling, learners have the flexibility and freedom to learn at their own pace. It can be a better option for those who want to continue their education if they had left their schooling inorder to pursue professional sports or other careers, and children with special needs who had discontinued their education. As rightly suggested by Irfan *et al*, (2020) the use of online learning is indeed practical because it is flexible and can be widely used anywhere and any time. Maqsooda *et al* (2020) defined online education as the education with a mode of online delivery using digital solutions with a new paradigm method. Lestari & Gunawan (2020) suggested online education needs to be adjusted again with varying abilities of each teacher, student, and parent of students so that the constraints experiences can be minimized. The essence of online learning lies in the teachers' interest, mastery of technology by adopting strategies to make online teaching and learning effective by adjusting content according to the requirement of online teaching. Mujtaba *et al* (2021) show concern because if

teachers use traditional methods of teaching like giving lectures and providing homework and ask the students to send their activities by only electronic methods, the desired outcome of online classes cannot be achieved and it will be a worthless and boring process.
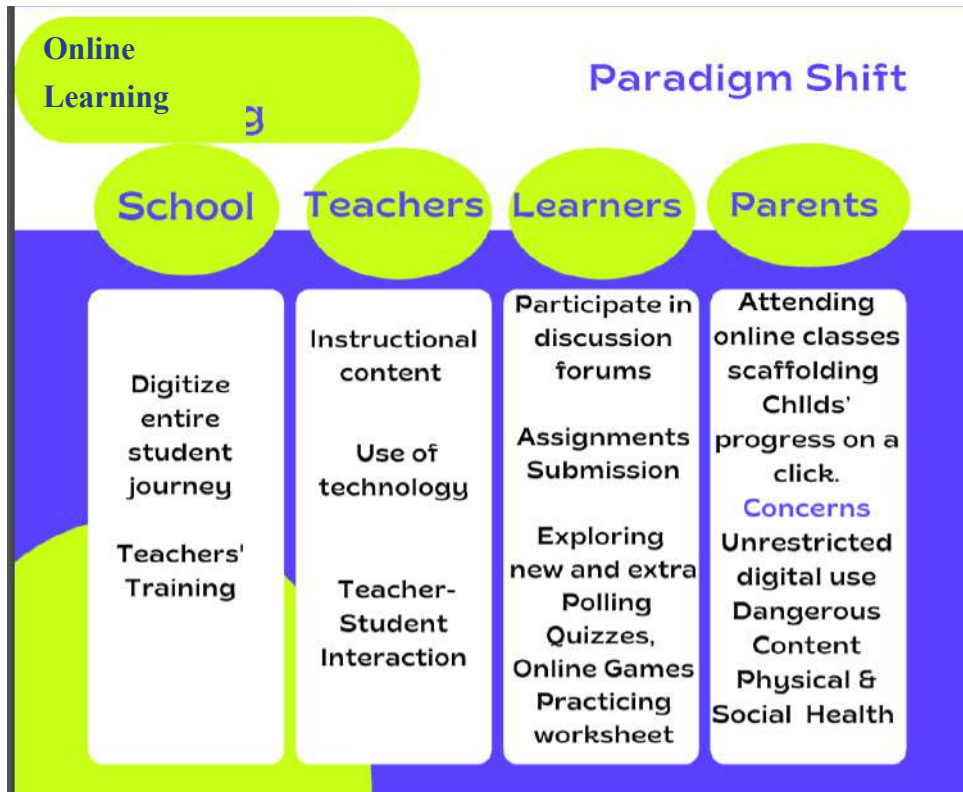

Figure 6.1 : Paradigm shift: Role of school, teacher, learner and parents

Paradigm shift for the school

The lockdown caused the physical school to close, but it still continued online. Schools have to make a paradigm shift from traditional setting to online setting starting from learners' admission process, conducting online classes, to examinations. Schools have to provide training in online teaching for teaching and non-teaching staff.

Paradigm shift for teachers

Role of teacher and instructional content

The physical classroom was the place where the teaching-learning process of school students happened before COVID-19. But the lockdown forced the institutions to shift the school to the learners' place. This crisis is forcing teachers to reinvent their roles from that of transferring information to enabling learning, as observed by Menon & Unni (2020). Educational institutions and teachers were reluctant to adopt technology in education. Sometimes, teachers in primary and secondary school lack knowledge of using technology and its online applications. The sudden transition to online education made some teachers rethink their traditional chalk-and-board lesson plan. Teachers started preparation for the new format lectures. They took responsibility in spite of low resources because of the lockdown. They adopted a variety of software and trained themselves, giving better knowledge to students. Some of them used

LMS as Edmodo, Google classroom (Irfan, *et al* 2020). For effective delivery of content, technological knowledge is essential during online learning. Mishra & Koehler (2006) strongly suggested that teachers should be aware of and should implement the alternative lesson plan as the Technological Pedagogical Content Knowledge (TPACK). A teacher's role has changed from a controller to a facilitator who ensures that online learners do not feel isolated but instead feel that teachers are always there to guide them and they are accessible. Moreover, the teacher cannot neglect challenges of using online teaching where learners face technical problems and issues of connectivity. Another barrier is about bringing subjects like science, art and music to life on the learner's display. Science teachers had to redesign the labs and the experiments as learners do not have all the equipment at home. Teachers should redesign the laboratory work as Project Based Learning (PBL) or Activity Based Learning (ABL) which will give them hands-on practice. Or teachers can use virtual labs for the a-ha! moments. For effective delivery of content, teachers should adopt an innovative strategy to make the content interesting, engaging, motivating, fun and creative for the learner. The teacher has to decide which content in the curriculum can be converted for online teaching and he/she plans the strategy to translate it accordingly for delivering it. Content can be woven with various online line tools for making it interactive for creating and sustaining the interest of students which is a key issue in e-learning which was addressed by Maqsooda *et al* (2020). Teachers have to be self-motivated and creative to create e-content such as videos, quiz slides to make the classroom interesting.

A study conducted in China by Dong et al (2020) found the parents' and students' rejection towards online learning which may be the result of poor quality of the content. In line with this study is the study conducted in India by Naik et al (2021). It confirms that for effective online teaching the teacher should make changes in their instructional strategies to make a student centered classroom which will help to engage their students. It means the content should help the learner to absorb the same material and in an interesting and easy way.

Role of teacher in using technology

Teachers can deliver content in the form of a presentation by making use of Microsoft PowerPoint, Open-Office Impress or can share self-made or third party videos or may use high-quality learning material or Open Educational Resources which are freely available. Teachers can use various ready-to-use LMS such as Edmodo or Google classroom and Zoom, Webex, Google Meet, Microsoft Teams, etc. for video conferencing which is in line with Irfan *et al* (2020) that teachers find it easier to use a ready-to-use and familiar LMS such as Edmodo or google classroom where video conferencing is still the main choice when teaching. various tools can be used by teachers to show visual representations PPT, virtual reality which can be shared with the students by recording the online live class which can be viewed and reviewed by students at their own pace and time which is mentioned in the study by Maqsooda *et al* (2020). A teacher can make use of self made videos of 5-10 min or can use already available videos Daniel (2020).

Teachers should make their lesson plans according to the TPACK model of teaching so that the content delivery will be fruitful for the students. In addition to this teachers should design the assignments to

inculcate the various 21st century skills such as media literacy, technological skill, communication skill and learners should be motivated to explore new things. According to Mujtaba *et al* (2021) teachers can also engage students in a presentation, discussion forum where they can comment, explain, discuss and solve different problems that are encountered by them. Teachers can use flipped classroom strategy where the content will be shared with students a day before, students will prepare their notes and list their doubts which will be discussed in the next class.

Teacher-student interaction

The teacher should interact with the learner during online class as there is the absence of physical contact, and the learner may feel shy or not capable of handling the technology with ease. Naik *et al* (2021) found communication a major drawback of online teaching and stated that interaction of student-teacher is the basis for effective learning. Teachers should facilitate the classroom environment for teacher-student and student-student interaction by giving freedom of expression.

Paradigm shift for learners

As the lockdown started, school shifted to learners' homes. Learners started attending online classes by joining the Zoom or Google meet link. During online learning, they started meeting and greeting their friends virtually. As the learners are socially apart they are already missing their friends, sharing tiffin, their talk which is all a part of their emotional experiences. During online lectures, some of them feel shy. They hesitate to ask questions to clear doubts. But learners should participate actively during online learning, in discussion forums, solve their doubts and submit their assignments. They should explore the internet and not just be confined to textbook knowledge and content provided by teachers. According to Mujtaba *et al* (2021) students should engage with their teachers as well as do different activities such as submitting their assignments, polling, quizzes, practicing worksheets and exploration of new things. Online tools provided by the teacher help learners acquire knowledge they can watch and rewatch the content. Learners can explore new things, listen and watch world class professionals from the web.

Paradigm shift for parents

Pre-COVID parents were often not aware of their child's daily progress, the values inculcated by the school or role of school in shaping the behavior of the child. Their role was only restricted towards attending parents meetings, open day or annual gatherings. As COVID-19 presented a novel situation, parents started attending online classes with their child to help them with their studies and to resolve technological issues. Parents worried about their child's unmonitored hours on the internet, their childs' health for continuous remaining in the front of the screen also have concerns about the usage of mobile devices and social health. Dong *et al* (2020) found dangerous content on the internet and the risks of unrestricted digital use are the major concerns. Also they lack professional knowledge to support their child in online learning. Now with the aid of technology they can view their childs' progress on a click. Various online assessment applications facilitate the Parent connect version where parents can monitor their childs' progress and performance on emails, WhatsApp or school apps etc.

Necessity of online teaching during COVID-19

In order to avoid spreading the Coronavirus pandemic and to ensure continuity of the educational process, educational institutions across the world adopted an online learning mode for education. Menon & Unni (2020) reported that, in this moment of crisis, digital technology holds great promise to provide learners with access to high- quality learning. These indicate the significance of online teaching. Social distancing made us geographically apart from each other but technology played the role of a savior for all educational purposes.

Online teaching promotes student centered classrooms where the students build up on their knowledge by themselves. The interesting colorful ppt videos create a deep and lasting effect on learners' minds. Research reveals online education promotes motivation, engagement, interest, understanding of abstract concepts and collaboration. Teachers' role is to motivate, engage them in interesting activities and bring out their hidden talents. Menon & Unni (2020) focussed our attention by sharing a valuable thought as access to technology and the internet is an urgent requirement in the information age. It should no longer be a luxury.

Importance of online teaching in school education during pandemic

Online learning is one of the effective forms which provides the opportunity of self-directed learning. Learners can set goals for themselves and try to achieve them.
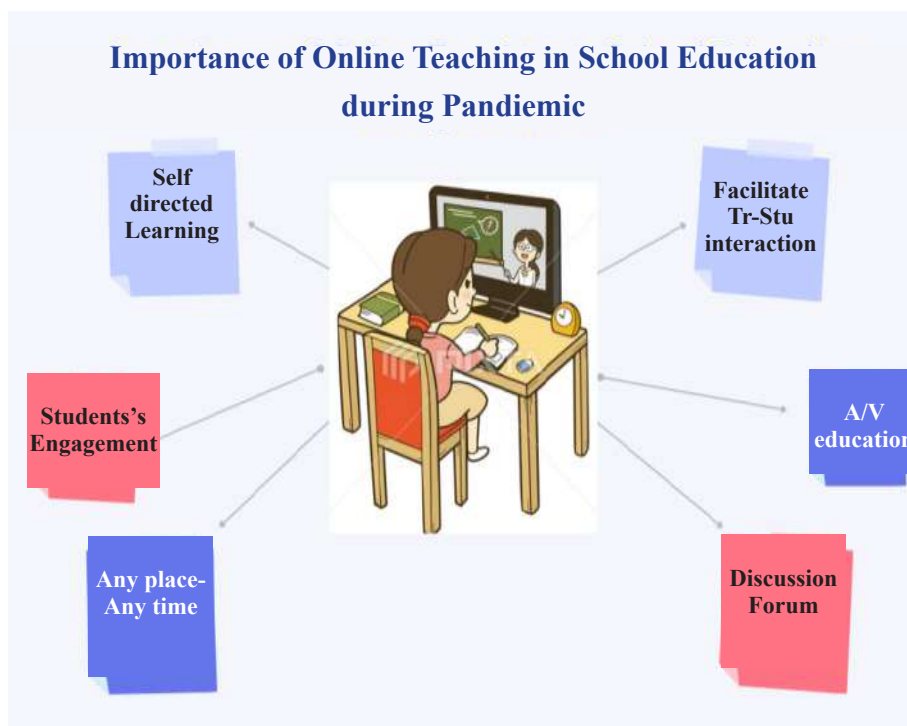

Figure 6.2 : Importance of online teaching in school education during the pandemic

Learning during online teaching can be synchronous and asynchronous. Synchronous learning facilitates teacher-student, student-student interaction at the same time. But both the synchronous and asynchronous learning are fretted with challenges. As both synchronous and asynchronous methods supplement each other, a blended form of these two learning can be a better option to avoid the challenges faced by online

learning. Asynchronous learning does not require interacting at the same time, but it helps the teacher and learner to share the content from any place and at any time.

Teachers do not need to deliver material at a fixed time: it can be posted online and students can engage with it using wikis, blogs, and e-mail. Students can learn more quickly and easily with the use of audio-visual education.

Open educational resources

To make the class engaging the teacher can make use of various gamification tools for conducting quizzes, polls, brainstorming, concept mapping, flowchart making etc. Naik et al (2021). In addition to these various apps, attractive and interactive PPT, online worksheets etc makes learning a fulfilled activity. As revision makes the learners clear their doubts and understanding of the concepts, teachers can make use of such online tools. NIOS always encourages use of OER in learning and teaching. Using OER a student admitted in Open school can excel in his studies.

Activity and Tools			
Online Learning			
ONLINE ACTIVITY	**TOOL**	**ONLINE ACTIVITY**	**TOOL**
To Teach	Zoom, Google meet, Webex, Microsoft teams	To Teach (LMS)- Synchronous Learning	Google Classroom, choology, Edmodo
To engage (Synchronous Learning)	Polls, Quizizz, Kahoot, Nearpod in self pace mode,	Asynchronous Learning	whatsApp, emails, PPT, Slldes Gamification in self pace mode,
To Collaborate	Group presentation using PPT, Gamification tools in Team mode	To Create Content	Canva, Slidego, Thinglink, Excel, Sheets, Sildes, PPT
To Flip the Classroom	Edpuzzle	To create & Edit Video	Vimeo, Windows Editor
To Assess	Testmoz, Google, Form	Student teacher interaction	Discussion Forum
Virtual labs	Amrita Lab, PhET Colorado	Practice & Assess	Polls, Quizizz, kahoot,

Figure 6.3 : Activity and tools for online learning

The education process is carried out continuously even during a pandemic by adjusting the circumstances, one of which is the use of various learning technology application platforms such as Edmodo, Google Classroom, Whatsapp, Zoom, Google meet or Webex, Google Forms, Testmoz etc. Teachers should explore such tools and make use of them during and beyond the pandemic. Lestari & Gunawan (2020) found many apps and learning resources that can be accessed freely for enriching content. Some

gamification tools give the opportunity of scaffolding students. Teachers should provide such games to engage and provide instant help, where necessary. Games create interest and enrich the understanding of the content by providing dynamic, interactive animations.

Initiatives of Indian Government for Open Resources

E-learning platforms have emerged as one of the best measures to help students continue their studies during COVID-19. Some of the educational platforms created and designed by the Government of India. Swayam online teaching–learning platform is one of the open educational resources (Kim *et al* 2020). SHAGUN is an online junction having e-learning platforms as NROER, DIKSHA and e-Pathshala under which the Department of School Education in the Government of India and all States and Union Territories (UTs) has launched several e-learning platforms (Gupta, 2020). Some other initiatives:

1. SWAYAM
2. SwayamPrabha
3. National Academic Depository (NAD)
4. National Digital Library of India
5. Virtual Labs

Contribution of study to the education community

The findings can contribute significantly to a paradigm shift in literature by supporting schools, teachers, learners and their parents with the main inclusions to engage and create interest of the learners that support their understanding of implementing online education. It provides the systematic instructional design process for school, teachers, educators and designers as guidance for applying online teaching.

Conclusion

At the beginning of the COVID-19 pandemic, all educational institutions came to a halt. But technology acted as a catalyst to resume education in an online mode in spite of the reluctance of all involved including the educational community. Online teaching has changed the whole teaching-learning process. It enabled teachers to reach out to students more efficiently and effectively through chat groups, video meetings, voting and also sharing documents. A blend of traditional and online can be expected to face future challenges; also, open schooling can be considered a better option. The pandemic has shown the need for reform in the education system in the form of hybrid or blended learning. Online learning will always remain as a linchpin of the education system and the role of teacher in any mode of learning cannot be undermined.

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