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Article

NEP-2020: Implementation Problems and Solutions in the Context of Pedagogical Approaches & Assessment

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Abstract

National Education Policy 2020 has recommended the transformation of the education system to achieve **Atamnirbhar Bharat**. The omnibus policy programme replaces the 1986 National Policy on Education, the hangover of which is still a big challenge. Amongst recommended changes related to structural inequities and the broadening of access, the policy addresses pedagogical and assessment issues. It commits to making the learners future ready while meeting the demands of a 21st-century India. Being one of the most populated countries India has diverse cultural settings making the policy implementation beset with a large number of issues including access to technology and exposure of stakeholders to flexibilities in pedagogy and assessment process. Simultaneously, the NEP has the most challenging task of addressing multiple crises in the education system. Its effective implementation is crucial if India wants to reap the demographic dividends and capitalize on the opportunities from a rapidly growing knowledge economy. Given its transformative potential, the Government of India has shown urgency and a sense of purpose by launching a series of initiatives in recent months, notwithstanding the other challenges. Government initiatives include PM eVIDYA Programme, the e-pathshala, and swayam portals, etc. However, the complexity involved in policy execution requires coordination and cooperation amongst diverse stakeholders—bureaucrats, parents, teachers, planners, and educational managers to achieve the visionary goal following a daunting exercise. The present paper discusses various challenges and the ways to address these problems.

Key Words: Hybrid learning, Blended learning, e-learning, Digital India, Disha, e-Pathshala, Smart Classrooms, Diksha, Nishta, e-vidya Programmes, QR codes, Podcast, Swayam, Swayam Prabha, MOOC

Introduction

The National Education Policy 2020 (NEP 2020), approved by the Indian Union Cabinet on July 29, 2020, sets out the vision for India's new education system. The new policy replaces the previous National Education Policy, 1986. The NEP 2020 like any policy framework, is futuristic and a path-breaking document in every sense. It is ultramodern in the sense that it aims to prepare the beneficiaries of the system skill-ready for the fifth-generation industry where technology is power. The comprehensive framework covers all levels of education right from the fundamental stage to higher education and vocational training in rural and urban areas of India. The process of education has been designed with the purpose to make students proud of their heritage of being sons and daughters of Jagat Guru (India). A sort of continuum has been created from ancient Jagat Guru India to Self-reliant India (Atam Nirbhar Bharat). The policy, amongst others, aims to address pedagogical and assessment issues, for making the learners future ready while meeting the demands of a 21st-century India. The whole process of education so recommended is to distress the students. That is why freedom of choice and flexibility have been the very sum and substance of the policy. Freedom has been given to the student to choose the time of the study, subject of learning and assessment, and place of learning. For creating an educational ecosystem effective implementation has become

crucial. The underlying reason is that India is a country with a large diversity concerning language, regional culture, and rampant digital illiteracy. All said and done, there is writing on the wall that if India wants to reap the demographic dividends and capitalize on the opportunities from a rapidly growing knowledge economy such a policy must be implemented with all available resources. There is a long road ahead of the NEP. Given its scale and the kind of complexity involved in its execution, particularly securing coordination and cooperation amongst diverse stakeholders it is a daunting exercise. The government of India is quite aware of various problems and it has activated many of the apex-level agencies like NCERT, NIEPA, UGC, etc. to come out with suggestive modes to implement the policy in letter and spirit. Given the urgency and transformative potential, the government at the center has shown a sense of purpose by launching a series of initiatives in recent months. It is in light of these challenges and suggestions that the present write-up is being presented to highlight various ways to implement the policy recommendations.

The prevalent facilities in educational institutions, the use of information and communication technologies, and their linkage with teaching-learning as well as assessment have been discussed. Deliberations are limited to pedagogy and assessment under the main headings of independent learning, learner-teacher interaction, learner-content engagement, different kinds of learning experiences and kinds of assessment activities, and learner engagement with feedback. Ways have been chalked out for the institutions to be flexible to achieve the objective of the policy. For future preparedness of the education system following are the suggestions to implement the policy recommendations:

1. **Moving from teacher dominance to independent learning:** The main challenge for policy implementation is ongoing pedagogical practices in educational institutions where teachers dominate students' learning styles. The students are also attuned to follow teacher dictates without any thinking input. NEP desires that the education systems train the students to decide on their own for selecting different learning activities according to their needs and requirements. To get over this problem of teacher-centric pedagogy, the teachers may like to initiate learning experiences by sending small video clips with some thought-provoking questions via WhatsApp groups, Facebook, or such tools that would provide liberty to students to choose their learning activity. Similarly, project work and problem-solving activities need to be carried out in groups without teachers' presence all the time. Students can be exposed to different learning experiences by being engaged from different platforms as part of the learning exercises.

2. **Hybrid, blended, and flipped teaching-learning**: Unfortunately, education systems in India are accustomed to textbooks as the foremost source of content. Institutions rarely expose students to internet services or different discussion groups or different online sources for seeking information on the topics. The exposure to other sources is feared by the custodians of students as misleading. The parents as well as teachers never allow them to look for other content-sources. The hapless students are left with no alternative but to wait for their teacher to explain textbook material. Research says that the institutions that depended on the learners engaging with the content in a singular mode are supposed to be less successful than the organizations having different ways for learners to interact with content(Pritchett, 2013, Reimers, F., and A. Schleicher, 2020). Institutions with multiple exposures to students have been recommended by NEP as they provide learning opportunities with the alternate mode at their convenience. Another slip-up on the part of the educational institutions is that they expect the students to attend classes and participate in the teaching-

learning process while being face-to-face with the teacher within the four walls of the classroom. NEP-2020 recommends that educational institutions use Blended learning (a combination of offline face-to-face customary learning, and online learning). The process will help students attend classes in a real-world classroom setting and supplement their learning in online mode. This type of blending of real and virtual modes makes the learning continuous and regular without breaking or halting the system. Another way for continuous learning for the students is "hybrid mode" where a group of students attends regular classes and another group is exposed to teaching-learning in online mode at the same time. The complementary settings are expected to improve the learning involvement of the students and will allow students to attend classes in any institution of their choice. The collaboration between student groups will motivate students and the teaching-learning process will go on uninterrupted.

The post-COVID-19 experience stands as testimony that schools all over the world learned from their past experiences and overhauled their instructional strategies by adopting blended learning as a cutting-edge convention. With the use of mixed mode, educational institutions provide students the advantage of both face-to-face and online learning experiences. The activities like planning instructions, group discussions, and small-group work projects are arranged in the blended classrooms. Teachers and parents feel satisfied as blended classrooms make students cooperate and coordinate with each other by sharing their observations leading to learning from others (Dyvlyash, 2022).

3. **Learner-teacher interaction**: Conventional classrooms limit the instructional process to face-to-face interaction. This type of thinking is a major block in implementing NEP recommendations. The schools and colleges usually make an excuse for not having desired infrastructure facilities to continue with the conventional mode of interaction. In such situations, the Prime minister's digital programme is a viable solution to help students interact with different teachers. Television channels are specially designed for teaching subject matter to students. The use of the e-vidya program with 12 eVidya TV channels, based on the line of 'One Class-One Channel' for classes 1 to 12 is most helpful. NEP-2020 expects schools and colleges to adopt eVidya channels as a part of their regular exercise so that teacher-student interaction could be enhanced with more than one teacher at a time. Higher education institutions may follow Swayam Prabha channels for modified interaction.

4. **Using Multiple ways of Interaction with facilities provided by the Government**: One of the issues raised about the non-implementation of the policy is the digital divide. The problem of the digital divide is being solved by different initiatives taken by the government. Economic Survey 2020-21 reports that the percentage of school students owning a smart-phone in rural India has increased from over 36 percent to 61 percent in the last two years. It further states that if utilized well, the resultant reduction in the digital divide is likely to reduce inequalities in educational outcomes. By using different ICT tools the institutions can design learning experiences to provide opportunities for learners to interact with the content in multiple ways and interact with different teachers in different channels in different modes. In this direction there already exists the **Digital India initiative** of the government of India wherein extensive steps to boost **digital education** activities are prevalent. The programmes like **DIKSHA**[4] (a platform offering school curriculum-based learning materials); **ePathshala Portal** (a portal that acts as a storehouse of audios, videos, epubs, flipbooks, etc.),and Swayam are to be used to engage young learners in a motivated manner. Wherever the technology availability is less the QR code can be used for the discoverability of the content or the book, to help school

students and teachers learn and evaluate performance in real-time. Over 500 million school textbooks now provide digital content by scanning QR codes (GOI Budget speech 2021).

5. **Personalized and Adaptive Learning for Students:** Using different modes and different technologies like mobile access, wi-fi access, as well as physical access(whenever and wherever that's required and feasible),students' personalized learning can be promoted. Students can use these tools sitting anywhere (Dyvlyash2022). Recognizing a student's learning style and then translating it into teaching will lead to the personalization of learning for the students. The use of Artificial intelligence and cloud computing helps in the Personalization of learning by leveraging technology to its fullest potential in education, creating a Learning Management System that includes Adaptive Learning to achieve the desired target. A combination of data at hand and artificial intelligence helps teachers identify the learning gaps of students and utilize Learning Management System (LMS) while instructing on the internet in a virtual classroom or conventional classroom. Education institutions should make use of such advanced technologies and put the same in simple or non-digital work, assignments, exercises, labs, etc., on an LMS, with exceptional rapidity.

6. **Modified assessment activities:** The moment one starts thinking about the assessment process, the first point that comes to mind is copying or cheating by the students. Education scientists will have to consider that cutting corners is human nature and young students are no exception to it. But it does not mean that the assessment should be stopped. The issue has two aspects.
   (a) The first one is that the objective of the assessment should be changed from assessment-of-learning to assessment-for-learning. Students should be assessed for improving their learning. The problem of cheating can be overcome if the assessment is made to enhance learning. Immediate feedback to improve upon will boost students' morale. Another aspect linked with the assessment issue is to minimize plagiarism. The assessment activities should be designed by ensuring objective assessment. It is possible by having assessments based on Question banks, open book examinations, Project work assessments, etc. The teachers should be well trained for designing such assessment activities. Education institutions may like to use Artificial intelligence in designing assessment processes. In this process, the services of the National Educational Alliance for Technology (NEAT) may be utilized as its primary function is to design ICT tools to help education institutions in the assessment process with cloud computing and artificial intelligence. Training the teachers in using the improved assessment methodologies and use of advanced technology can bring a transforming change in assessment activities.
   (b) NEP 2020 recommends evaluating "higher-order skills, such as analysis, critical thinking and conceptual clarity," by shifting the focus of assessments from a marks-based system to a competency-based assessment. The questions in the tests should be based on the student's aptitude. The process of assessment will be taken care of by the NEAT as it will provide the desired software for the purpose.
   (c) The students in higher education institutions have been given autonomy to choose their courses as per their choice. The '**Choice Based Credit System**', provides a convenient and effective teaching-learning platform wherein the student or knowledge seeker has the flexibility to choose the course from a list of elective, core, and soft skill courses. It is a sort of Buffet system where the courses are chosen by the student as per his/her capacity. The only condition for the student is to complete the required number of credits to be eligible to obtain a degree. For this purpose, the NIEPA (2020) has developed a stepwise procedure to implement ABC in institutions. The process

of creating an Academic Bank of Credits (ABC) by allotting an account number and matching the credits of different institutions has been explained in detail in the NIEPA document. Students will be under no stress to complete the course within the stipulated period. Rather they will be free to follow a course at their convenience. They will study and earn credits. The credits so earned will be accounted for by their account number. Whenever they complete the required number of credits the degree or certificate will be awarded accordingly.

(d) The students should also be **assessed by their peers**. It is applicable in the case of project work or coordinated ventures. The peers assess the work done by each of them. Such an assessment provides better feedback and more learning opportunities.

(e) Self-assessment is another mode to evaluate the students. Each student is asked to give details of what he/she has learned during the course of the assigned project. The experiences so detailed out are the best assessments of a student and these are without the prejudices of the evaluator or teacher.

7. **Improving the feedback process:** Indian education system follows a conventional feedback process wherein Feedback is given by way of marks or by way of comments on assignments or a home task booklet submitted by the learner. These marks or comments are often found to be disheartening to the students. According to a 2018 Report from the Indian government, exam-related pressure was the largest cause of suicide among India's youth (Chakraborty, 2018). Many reports like these are available where parental or institutional pressure because of marks made the students take the extreme step. To get over these problems the NEP recommends replacing high stake examinations with a continuous and comprehensive assessment. Technology is available for being used to assess thinking-based answers to provide on-time and real-time feedback to students in a variety of ways. NEP has already committed that a rich variety of software will be made available to students and teachers at all levels. In this direction, National Research Foundation (NRF) has been tasked to expand research efforts in technology and artificial intelligence.

8. **Modifying learner engagement with the institution**: NEP requires that the educational institutions will have to be accustomed to the phrase that '**everybody needs not to come to campus; everyday institution need not be opened all the time**". It is not about open- schooling or open education system rather it is about the process of following online interaction intertwined with the conventional classroom system. Once or twice a month, online interactions with teachers and students can be organized. This exercise will expose the staff and students to online interaction. Educational institutions may like to follow the 24X7 process of teaching-learning, especially for senior secondary and higher education students. The discussions held with students could be recorded and given to the students who could not be present in the organized discussions. These students could interact with the same at their convenience to have similar learning as their peers who were present at that particular time or date.

9. **Researchers' Task**: NEP has drawn a road map for higher education institutions to play an active role in conducting research on disruptive technologies and creating initial versions of instructional materials and courses including online courses in cutting-edge domains and assessing their impact on specific areas such as professional education. Further, the HEI will aim to offer Ph.D. and Master's programmes in core areas such as Machine Learning as well as multidisciplinary fields "AI + X" and professional areas like health care, agriculture, and law. They may also develop and disseminate courses in these areas via platforms, such as MOOC and SWAYAM.

10. **Specialized Teacher professional development programmes**: Since the teachers are the main functionaries of the education system their training in using

digital material is most required. The interactions with students or other education institution authorities will be impactful if proper training is given, about the usage of available gadgets. Adequate training will be provided to teachers on digital content with clear directions on operating the smart TV; broadcasting content on DISKHA as well as launching MOOC courses. Professional development of teachers and support is essential with the changing role of teachers in the blended world. Online training curricula can be curated on NISHTA & SWAYAM and leveraged to up-skill teachers for enhancing their digital literacy. It has to be ensured that the teachers are comfortable using multiple technology tools (Smart TV, DIKSKA, ePathshala) available to them, to make use of these in the teaching-learning process. Best practices and case studies of teaching, translating online learning, and transforming it into a digital classroom are to be documented and shared with other teachers. (Thukral 2022).

11. **Virtual Labs:** For science and engineering students' virtual laboratories have been recommended. Virtual labs are interactive, digital simulations of activities that typically take place in physical laboratory settings. Virtual labs simulate the tools, equipment, tests, and procedures used in chemistry, biochemistry, physics, biology, and other disciplines. The students studying science or engineering in the remote corners of the country or those who cannot regularly attend the classes can make use of these to upgrade their skills. Institutions like NCERT, NIOS, and IGNOU have done credible efforts in this direction (http://www.olabs.edu.in/).

12. **Improving Infrastructure**: NEP has required that all educational institutions will be provided with the desired infrastructure. Schools and higher education institutions must vouch for **Smart Classrooms** for combining traditional classroom teaching with digital learning. It can be implemented by installing a digital screen, a Smart TV, or a projector, thereby playing digital content in the classroom. The 'blending' of conventional teaching methodology and modern-day technology creates an efficient learning environment. Course content can be made available either live or via recorded lecture videos delivered to teachers beforehand, which are then telecasted in front of larger groups of students on the premises of the institution daily. Digital content will help teachers introduce effective and innovative pedagogies and use technology as a tool. Complex concepts can be explained to students by curating interactive digital videos. Engaging videos and videos of eminent personalities for motivation can be collected and played during the class to make the classroom sessions more exciting and attractive for the students. A smart classroom is an efficient[8] and cost-effective intervention based on various research studies.

Government Initiatives to transform the Education system: The union ministry of education launched the Students' and Teachers' Holistic Advancement through Quality Education (SARTHAQ) — an implementation plan for the National Education Policy (NEP) 2020. It outlines the roadmap for the implementation of NEP 2020 over the next 10 years while keeping in view that Education is a concurrent list subject. Government is quite aware that technology will play an essential role in improving educational outcomes, as the relationship between technology and education is bidirectional[1]. Under the Digital India initiative, the government of India has taken extensive steps to boost digital education activities. A few of the ICT initiatives for the education system are:

a. **PM eVIDYA Programme** –Its major goal is to provide high-quality education to all of the country's pupils. The Indian government has developed the eVIDYA Programme to give online education to all of the country's students. It is a unique and comprehensive initiative aimed at unifying all efforts to enable multi-

mode access to education. It unifies efforts related to digital/online education to enable multi-modal access to education. (PM e-Vidya https://pmevidya.education.gov.in/)

b. **12 eVidya TV channels**: Also termed as Swayam Prabha it hosts new content daily for at least (4) hours based on the line of One Class-One Channel for classes 1 to 12. The process gets repeated 5 times a day, allowing students to choose the time of their convenience. The channels are uplinked from BISAG (Bhaskaracharya Institute of Space Applications and Geo-Informatics), Gandhinagar. The contents are provided by NPTEL, IITs, UGC, CEC, IGNOU, NCERT, and NIOS. The INFLIBNET Centre maintains the web portal.

c. **National Digital Educational Architecture** (NDEAR) – a digital platform to support activities related to education planning. It is federated, unbundled, interoperable, inclusive, accessible, and evolving to create and deliver diverse, relevant, contextual, and innovative solutions that benefit students, teachers, parents, communities, and administrators and result in the timely implementation of policy goals. The students get access to on-demand learning materials, videos, graphics and animations, virtual labs, and different forms of assessment tools for having access to Personalized Adaptive Learning (PAL). (NDEAR https://www.ndear.gov.in/)

d. **National Educational Alliance for Technology (NEAT)**: Regulatory body is created to use technology for better learning outcomes. NEAT aims to use artificial intelligence to make learning more personalized and customized as per the learner's requirement. It even proposes to create a national alliance with EdTech companies for a better learning experience. It will come with the challenge of establishing a robust digital infrastructure that could cater to remote areas.

e. **DIKSHA** – The Digital Infrastructure for School Education (DIKSHA) platform developed by the Ministry of Education has the necessary building blocks to develop online courses, energized textbooks, question bank tools, and others. It is an e-platform offering school curriculum-based learning materials. It caters to all the persona in the ecosystem and is supported in 30 languages. DIKSHA being an open-source platform, can be further enhanced by integrating the Learning Management Personalised eLearning services on the platform. After the students get themselves registered on the DIKSHA platform, they are administered a pre-test to assess the student's knowledge level before the course's commencement. The pre-test is used to segregate students into three groups: Beginner, Intermediate and Advanced. The metadata of the students is stored in the database and accessed by the expert system. A customized learning path is designed for the students, based on their level of understanding, learning style, and pace. ('Diksha' https://diksha.gov.in/)

f. **ePathshala Portal** – a portal that acts as a storehouse of audio, videos, epubs, flipbooks, etc. The platform offers a slew of educational resources, including NCERT textbooks for classes 1-12, audio-visual resources by NCERT, periodicals, supplements, teacher training modules, and a variety of other print and non-print materials. These materials can be downloaded by the user for offline use with no limits on downloads. The app supports the flip book format to provide a more realistic experience. (ePathshala -Learning on the Go' https://epathshala.nic.in/)

g. **NISHTHA** – National Initiative for School Heads' and Teachers' Holistic Advancement is a capacity-building programme for "Improving Quality of School Education through Integrated Teacher Training". It aims to build competencies among all the teachers and school principals at the

elementary stage. The functionaries (at the state, district, block, and cluster level) are trained in an integrated manner on learning outcomes, school-based assessment, learner-centred pedagogy, new initiatives in education, addressing diverse needs of children through multiple pedagogies, etc. (NISHTHA webpage https://itpd.ncert.gov.in/)

h. **QR codes in textbooks**: The QR code is formed using patterns of black dots and white spaces along with a six-digit unique identifier assigned to a textbook. The QR code associated with the book or content enhances the discoverability of the content or the book, to help school students and teachers learn and evaluate performance in real time. Over 500 million school textbooks now provide digital content by scanning QR codes (GOI Budget speech[7] 2021).

i. **Radio and podcast**; Radio programmes properly amplified sound in a classroom improve students' attention and thus their interactions increase. In other words, students learn and retain more through increased hearing ability. Classroom amplification systems allow students to hear more clearly and learn more. Podcasts allow students to practice their listening comprehension of complex texts that are both conversational and formal, and the corresponding transcripts enable students to confirm their success

j. **Swayam:** SWAYAM is a program initiated by the Government of India and designed to achieve the three cardinal principles of Education Policy viz., access, equity, and quality. The objective of this effort is to take the best teaching and learning resources to all, including the most disadvantaged. SWAYAM seeks to bridge the digital divide for students who have hitherto remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy. It conducts online certification courses on a variety of subjects for which exams are held every semester in Computer Based Mode or hybrid mode, i.e. CBT mode and paper pen mode. (SWAYAM webpage https://swayam.nta.ac.in/)

k. **Swayam Prabha:** SWAYAM Prabha initiative of the Ministry of Human Resources Development provides 34 High-Quality Educational Channels through DTH (Direct to Home) across the length and breadth of the country on a 24X7 basis. It has curriculum-based course content covering diverse disciplines. (swayamprabha webpagehttp://swayamprabha.gov.in)

l. **MOOC:** Massive Open Online Courses (MOOCs) are free online courses available for anyone to enroll. MOOCs provide an affordable and flexible way to learn new skills, advance your career and deliver quality educational experiences at scale.

m. **Virtual Laboratory:** Virtual labs are interactive, digital simulations of activities that typically take place in physical laboratory settings. It has been specially designed for engineering and science students.

Conclusion

NEP-2020 being futuristic in nature has visualized higher education pedagogy and assessment to be flexible and learner-centric. Technology has to be used to make learning and assessment stress-free for students. The concept of 24X7 learning is recommended where the curriculum is such that it promotes thinking on the part of students. The pedagogies like blended learning using hybrid modes will be used for curriculum transaction. Similarly, examinations are not stressful anymore as high-stake examinations have been replaced with teacher assessments. The teacher will not categorize students while assessing their learning rather efforts will be made to improve their achievement level during the assessment. All this is to be carried out by using technology at the level of students, teachers, managers, and institutions. The usage of technology is not

going to be fearful since efforts have been initiated at the governmental level by creating sites for the training of teachers and students. Radio and television channels have been made available as per the curriculum to promote the all-time teaching-learning culture. It is hoped that with the 'Will' of the political system, the commitment of education planners, the Pledge of teachers and the assurance of the government's machinery the promising policy will be implemented under all the odds to attain the objective of Atam Nirbhar Bharat. The slogan for Future India is "Jai Vigyan and Jai Anusandhan" with the implementation of the NEP-2020.

Reference

Beard, Alex, (2020, July 29). *When schools closed, teachers had to think fast. Here's what they came up with*. Apolitical.
https://apolitical.co/en/solution_article/schools-closed-teachers-online-classrooms.

Chakraborty, P. (2018, February 25) Exam fear, poor scores take a toll, 6 students end life. *Times of India*, *Lucknow Edition*.

Dyvlyash, V. (2022, March 09). The Ultimate Guide to Advantages of Hybrid Learning Model. *Aristek System, e-learning*. https://aristeksystems.com/blog/hybrid-learning-model/

Sitharaman, N. (2021). Inequity and Growth: conflict or convergence. *Economic Survey* (2021-22).

India Development Review (2021, April 12) 'Education Ministry Launches SARTHAQ to Implement NEP-2020.

Ministry of Human Resource Development, Government of India, (2020) *National Education Policy' 2020.* PP.65. https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf

National Institute of Educational Planning and Administration (December 2020), 'NEP-2020, Implementation Strategies' *NIEPA publication* pp.194

Ministry of Finance, Government of India. (2021, February 1). *Budget Speech of Nirmala Sitharaman*, New Delhi. https://www.indiabudget.gov.in/doc/budget_speech.pdf

Sitharaman, N. (2022). Inequity and Growth: Conflict or Convergence? In *Economic Survey (2020-21), India Budget,* Ministry of Finance, Government of India. https://www.indiabudget.gov.in/budget2021-22/economicsurvey/doc/vol1chapter/echap04_vol1.pdf

Pritchett, L. (2013). *The Rebirth of Education: Schooling Ain't Learning*. Washington, D.C.: Center for Global Development.

OECD (2020). Schooling disrupted, schooling rethought: How the Covid-19 pandemic is changing education. *OECD Policy Responses to Coronavirus (COVID-19)*, OECD Publishing, Paris. https://doi.org/10.1787/68b11faf-en.

Thukral, S. (2022, June 8). Covid pandemic impact: When Technology Marries School Education. *Business standard*. https://www.business-standard.com/article/education/covid-pandemic-impact-when-technology-marries-school-education-122060800118_1.html

Vegas, E., Lyle, L.G., Zinny, G.S. & Bonis, D.D. (2020, August 21). *Education & COVID-19: What's next?* Webinar from Biennial of the Americas.
https://vimeo.com/450505286?ref=tw-share

Vegas, E. (2020 July 6) Reopening the World: Reopening Schools-Insights from Denmark and Finland. *Brookings.* https://www.brookings.edu/blog/education-plus-development/2020/07/06/reopening-the-world-reopening-schools-insights-from-denmark-and-finland/

Vidyasaarathi Report. (2022, October 11). scholarship Management portal promoted by NSDL e-Governance in Mint (ePaper)