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## EFFECTIVENESS OF MHRD e-CONTENTS DURING COVID - 19

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**Abstract:** When the Government of India declared a nation-wide lockdown on 23rd March 2020 to contain the spread of COVID-19, immediate action was taken to intensify digital learning with equity so that students across the country could continue their learning even during the lockdown. The Ministry has, over the last few years, developed a rich variety of online resources that are available on a variety of platforms. While students and teachers can access these through their laptops, desktops and mobile phones, these resources are being reached to learners in remote areas through Television and Radio. This paper provides in depth knowledge of various online platforms that are helping to Students, Researchers, and others to study during this pandemic period.

**Keywords:** MHRD, NMEICT, NDLI, DTH, UGC etc.

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### INTRODUCTION:

In wake of the COVID 19 pandemic, the Indian National Commission for Cooperation with UNESCO (INCCU) has been working online to carry forward the mandates of the respective Sub Commissions. The Ministry of Human Resources Development and its associated institutions are promoting digital education through online educational platforms and through the mediums of TV and RADIO.

TV Channels/Radio is being used to reach out to the most difficult areas. The 32 DTH TV channels are available on Swayam Prabha. These channels are available for viewing across the country using DD Free Dish Set Box and Antenna. The same are being promoted with special emphasis on students in remote areas. 12 channels exclusively marked for School education (Class 1 to 12). Swayam Prabha Channels pertaining to school education given for 2 hours per day to each State/UT. States develop class wise/subject wise content mapped to their syllabus in local languages. Private DTH service providers have also provided one channel each for education during COVID period. Extensive use is being made of radio channels to broadcast educational programmes. Radio is used specially for those children in remote areas who are not online (specially for classes 1 to 5). Activity based learning will be very effective for radio channels. 289 Community Radio Stations are to be used. Due to digitalization, huge portions of Analog spectrum of Radio and TV that are not in use, may be utilized for connecting people online in remote areas.

### NATIONAL MISSION ON EDUCATION THROUGH INFORMATION AND COMMUNICATION TECHNOLOGY:

The Government of India is keen to use the technological resources in helping its mission to make Higher Education accessible to all deserving students. In this regard, it

has launched its National Mission on Education through Information and Communication Technology (NMEICT) in 2009 to provide the opportunity for all the teachers and experts in the country to pool their collective wisdom for the benefit of every Indian learner and, thereby, reducing the digital divide.

Under this Mission, a proper balance between content generations, research in critical areas relating to imparting of education and connectivity for integrating our knowledge with the advancements in other countries is to be attempted. For this, what is needed is a critical mass of experts in every field working in a networked manner with dedication. Although disjointed efforts have been going on in this area by various institutions / organizations and isolated success stories are also available, a holistic approach is the need of the hour. This Mission seeks to support such initiatives and build upon the synergies between various efforts by adopting a holistic approach. The Mission is also necessary to sustain a high growth rate of our economy through capacity building and knowledge empowerment of the people and for promoting new, upcoming multi-disciplinary fields of knowledge.

#### **OBJECTIVES OF NMEICT:**

The National Mission on Education through Information and Communication Technology (NMEICT) has been envisaged as a Centrally Sponsored Scheme to leverage the potential of ICT, in teaching and learning process for the benefit of all the learners in Higher Education Institutions in any time anywhere mode. The three cardinal principles of Education Policy viz., access, equity and quality could be served well by providing connectivity to all colleges and universities, providing low cost and affordable access-cum-computing devices to students and teachers and providing high quality e-content free of cost to all learners in the country. NMEICT encompasses all the three elements. It plans to focus on appropriate pedagogy for e-learning, providing facility of performing experiments through virtual laboratories, on-line testing and certification, on-line availability of teachers to guide and mentor learners, utilization of available Education Satellite (Edu SAT) and Direct to home platforms, training and empowerment of teachers to effectively use the new method of teaching learning etc.

#### **ICT INITIATIVES OF MHRD:**

E-learning platforms of the HRD Ministry have seen an unprecedented, combined access of over 1.4 Crore since 23<sup>rd</sup> March 2020 (COVID period). Details of various online platforms By NMEICT and their effectiveness during COVID-19 period:

##### **❖ Audio-Video Contents:**

1. **Swayam:** Swayam is a programme initiated by 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 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.

This is the national online education platform hosting 1900 courses covering both school (class IX to XII) And Higher Education (both UG and PG) in all subjects including engineering, humanities and social sciences, law and management courses. A unique feature of SWAYAM is that it is integrated with the conventional education. The courses are interactive and prepared by the best teachers in the country and are available free of cost to any learner in the country. More than 1,000 specially chosen faculty and teachers from across the country have participated in preparing these courses. Credit transfers are possible for SWAYAM courses (max 20%). There has been a three time increase in access to the platform during the lock down period.

**The courses hosted on SWAYAM are in 4 quadrants –**

- (1) Video lecture,
- (2) Specially prepared reading material that can be downloaded/printed
- (3) Self-assessment tests through tests and quizzes and
- (4) An online discussion forum for clearing the doubts.

Steps have been taken to enrich the learning experience by using audio-video and multimedia and state of the art pedagogy / technology. Courses delivered through SWAYAM are available free of cost to the learners, however learners wanting a SWAYAM certificate should register for the final proctored exams that come at a fee and attend in-person at designated centres on specified dates. Eligibility for the certificate will be announced on the course page and learners will get certificates only if this criterion is matched. Universities/colleges approving credit transfer for these courses can use the marks/certificate obtained in these courses for the same.

There has been a three time increase in access to the platform during the first three months lock down period. The National Online Education Platform SWAYAM has been accessed nearly 2.5 lakh times till yesterday, which is about a five time increase over the figure of 50,000 strikes in the last week of March. SWAYAM Platform may be now viewed by any learner free of cost without any registration in COVID-19 period.

2. **Swayam Prabha:** It has 32 DTH TV channels transmitting educational contents on 24/7 basis. These channels are available for viewing across the country using DD free Dish set top box and antenna. Now even the private DTH operators are telecasting these courses through their channels. The channels cover both school education (class IX to XII) And Higher Education in a wide range of subjects like engineering, vocational courses, teacher training, performing arts, social sciences and humanities subjects, law, medicine, agriculture and many more.

Swayam Prabha telecast high-quality educational programmes on 24X7 bases using the GSAT-15 satellite. Every day, there will be new content for at least (4) hours which would be repeated 5 more times in a day, allowing the students to choose the time of their convenience. The channels are uplinked from BISAG, Gandhinagar. The contents are provided by NPTEL, IITs, UGC, CEC, IGNOU, NCERT and NIOS.

The INFLIBNET Centre maintains the web portal. The DTH Channels shall cover the following:

**3. The DTH Channels:**

- a) **Higher Education:** Curriculum-based course contents at post-graduate and undergraduate level covering diverse disciplines such as arts, science, commerce, performing arts, social sciences and humanities, engineering, technology, law, medicine, agriculture, etc. All courses would be certification-ready in their detailed offering through SWAYAM, the platform being developed for offering MOOCs courses.
- b) **School Education (9-12 levels):** modules for teacher's training as well as teaching and learning aids for children of India to help them understand the subjects better and help them in preparing for competitive examinations for admissions to professional degree programmes.
- c) **Curriculum-based courses:** that can meet the needs of life-long learners of Indian citizens in India and abroad.
- d) **Assist students (class 11<sup>th</sup> & 12<sup>th</sup>):** prepare for competitive exams Digital content Access.

**4. Journals and e-books.**

Nearly 59000 people are viewing the videos of the SWAYAM Prabha DTH TV channels every day, more than 6.8 lakh people have watched these since the lockdown began. They have launched special classes during this challenging time for the benefit of students.

❖ **Digital Contents: Access journals and e-Books**

- **National Digital Library:** To make available to the learner's community learning resources through a single-window, National Mission on Education through Information and Communication Technology (NMEICT) has sponsored the National Digital Library of India (NDLI) project and arranged funding through MHRD. Filtered and federated searching is employed to facilitate focused searching so that learners can find out the right resource with least effort and in minimum time.

NDLI is designed to hold content of any language and provides interface support for leading vernacular languages, (currently Hindi, Bengali and several other languages are available). It is designed to provide support for all academic levels including researchers and life-long learners, all disciplines, all popular forms of access devices and differently abled learners. It is being developed to help students to prepare for entrance and competitive examinations, to enable people to learn and prepare from best practices from all over the world and to facilitate researchers to perform inter-linked exploration from multiple sources. It is being developed at Indian Institute of Technology Kharagpur.

- Effectiveness during COVID-19

1. The National Digital Library was accessed about 1,60,804 times in just one day during lockdown, and about 14,51,886 times during the lockdown period, as against about 22000 daily strikes earlier.
  2. It has reached out to students with 3.5 Crore academic content to enable them to study from home.
  3. In the outbreak of COVID-19, all the e-resources can be accessed without being signed up. All the education material is available from primary to PG level.
  4. NDL has built a repository named 'Covid-19 research resource repository' to bring in the latest research material from across the world, be it data, research work, videos, challenges and funds.
  5. **Shodhganga: a Reservoir of Indian Thesis:** Theses and dissertations are known to be the rich and unique source of information, often the only source of research work that does not find its way into various publication channels. Theses and dissertations remain an un-tapped and under-utilized asset, leading to unnecessary duplication and repetition that, in effect, is the anti-theses of research and wastage of huge resources, both human and financial. The UGC Notification (Minimum Standards & Procedure for Award of M.Phil. / Ph. D Degree, Regulation, 2016) dated 5th May 2016 mandates submission of electronic version of theses and dissertations by the researchers in universities with an aim to facilitate open access to Indian theses and dissertations to the academic community world-wide. Online availability of electronic theses through centrally maintained digital repositories, not only ensure easy access and archiving of Indian doctoral theses but will also help in raising the standard and quality of research. This would overcome serious problem of duplication of research and poor quality resulting from the "poor visibility" and the "unseen" factor in research output. As per the Regulation, the responsibility of hosting, maintaining and making the digital repository of Indian Electronic Theses and Dissertation (called "Shodhganga"), accessible to all institutions and universities, is assigned to the INFLIBNET Centre.
- **Shodhganga** is the name coined to denote digital repository of Indian Electronic Theses and Dissertations set-up by the INFLIBNET Centre. The word "Shodh" originates from Sanskrit and stands for research and discovery. The "Ganga" is the holiest, largest and longest of all rivers in Indian subcontinent. The Ganga is the symbol of India's age-long culture and civilisation, ever-changing, ever-flowing, ever-loved and revered by its people, and has held India's heart captive and drawn uncounted millions to her banks since the dawn of history. Shodhganga stands for the reservoir of Indian intellectual output stored in a repository hosted and maintained by the INFLIBNET Centre. Its use is much more increased during COVID -19 till 17th August it provides 276170 full text thesis, 520 universities signed MoU, 451 universities contributed.
    1. **e-Shod Sindhu** Based on the recommendation of an Expert Committee, the Ministry of HRD (now renamed as Ministry of Education) has formed e-Shod

Sindhu merging three consortia initiatives, namely UGC-INFONET Digital Library Consortium, NLIST and INDEST-AICTE Consortium. The eShodhSindhu will continue to provide current as well as archival access to more than 10,000 core and peer-reviewed journals and a number of bibliographic, citation and factual databases in different disciplines from a large number of publishers and aggregators to its member institutions including centrally-funded technical institutions, universities and colleges that are covered under 12(B) and 2(f) Sections of the UGC Act.

- **Aims and Objectives** The main objective of the e-Shod Sindhu: Consortia for Higher Education E-Resources is to provide access to qualitative electronic resources including full-text, bibliographic and factual databases to academic institutions at a lower rate of subscription. The major aims and objectives of the e-Shod Sindhu are as follows:

1. Develop a formidable collection of e-journals, e-journal archives and e-books on perpetual access basis.
2. Monitor and promote usage of e-resources in member universities, colleges and technical institutions in India through awareness and training programmes.
3. Provide access to subscription-based scholarly information (e-books and e-journals) to all educational institutions.
4. Provide access to scholarly content available in open access through subject portals and subject gateways; Bridge digital divide and move towards an information-rich society.
5. Moving towards developing a National Electronic Library with electronic journals and electronic books as its major building blocks.
6. During this lock down period various publishers associated with e-Shod Sindhu are giving free and full access to the educational institutions, research scholars and academicians: ACM digital library, Annual Reviews, Springer Nature and many more.
7. **e-PG Pathshala**

e-PG Pathshala is an initiative of the MHRD under its National Mission on Education through ICT (NME-ICT) being executed by the UGC. The content and its quality being the key component of education system, high quality, curriculum-based, interactive e-content in 70 subjects across all disciplines of social sciences, arts, fine arts and humanities, natural & mathematical sciences. It uploaded 22000+ Modules [e-text/video] of different course/subjects during COVID-19.

#### 8. Accelerated Hands-on learning.

**Virtual Labs** Virtual Labs project is an initiative of Ministry of Human Resource Development (MHRD), Government of India under the aegis of National Mission on Education through Information and Communication Technology (NMEICT). This project is a consortium activity of twelve participating institutes and IIT Delhi is coordinating institute. It is a paradigm shift in ICT-based education. For the first time, such an initiative has been taken-up in remote-experimentation. Under Virtual Labs project, over 100 Virtual Labs consisting of

approximately 700+ web-enabled experiments were designed for remote-operation and viewing. The intended beneficiaries of the projects are:

1. All students and Faculty Members of Science and Engineering Colleges who do not have access to good lab-facilities and/or instruments.
2. High-school students, whose inquisitiveness will be triggered, possibly motivating them to take up higher-studies. Researchers in different institutes who can collaborate and share resources.
3. Different engineering colleges who can benefit from the content and related teaching resources.

Virtual Labs do not require any additional infrastructural setup for conducting experiments at user premises. The simulations-based experiments can be accessed remotely via internet. NITK, Surathakal playing a prominent role during COVID-19 by setting up virtual laboratory, this lab is helping colleges in Karnataka, Goa and Kerala to continue their academic activities through eLearning.

#### 9. e-Yantra

An initiative by IIT Bombay that aims to create the next generation of embedded systems engineers with a practical outlook to help provide practical solutions to some of the real-world problems. It is sponsored by MHRD under the National Mission on Education through ICT program. The objective is to provide hands-on learning to engineering students who have limited access to labs and mentors. The goal is to create the next generation of (Embedded systems) engineers in India with a practical outlook to take on challenging problems and provide solutions. It has very high access rate during COVID-19.

- **E-Yantra facilitates the infrastructure creation by sharing its experience and expertise.**

#### **Benefits include:**

1. Increased enthusiasm amongst students Better.
2. BE projects with help from e-Yantra Resource Development Centre (e YRDC).
3. Better performance at Robotics competitions such as the e-Yantra Robotics Competition (e YRC)
4. Better trained and motivated faculty Robotics club Opportunity to receive Embedded Systems Course from IIT Bombay.
5. Better visibility for college nationally
10. **DIKSHA** – This is an online platform for school education. It offers teachers, parents and students engaging learning material relevant to the prescribed school curriculum. It has over 80,000 e-content items in multiple Indian languages, catering to Grades 1-12. During the lockdown period these contents have been accessed nearly 215 million times.
11. **NATIONAL REPOSITORY OF OPEN EDUCATIONAL RESOURCES (NROER):**

A portal equipped with best quality informational content on diverse topics in multiple languages a total of 14527 files including 401 collections, 2779 documents, 1345 interactive, 1664 audios, 2586 images and 6153 videos on different languages.

In addition to the above there are many other resources deployed by University Grants Commission (UGC), National Institute of Open Schooling (NIOS) and Indira Gandhi National Open University (IGNOU) which are being intensified. The lockdown period has seen a huge upsurge in digital learning. The access to the above digital resources has grown nearly five times. In addition to these, many institutions are holding online classes through various modes.

#### **12. ONLINE PROMOTION OF CULTURAL HERITAGE:**

‘Virasat Setu’ App launched to raise awareness about tangible and intangible heritage of India in the digital space. Webinars were held around Indian heritage sites and cities. The Government has ensured that grants payable to artists under various schemes are paid on time.

#### **PROMOTING SCIENTIFIC RESEARCH AS RESPONSE TO COVID 19:**

Over 200 Corona related research projects are on at leading Science and Technology institutions in the country. These range from Personal Protective Care Equipment to Testing Kits, Data Analytics Models and Treatment alternatives. Engineering students from IIT Bombay, NIT Srinagar and Islamic University of Science & Technology (IUST), in Jammu and Kashmir, has come up with a low-cost ventilator using locally available materials. IIT Delhi has developed low-cost Probe-free COVID 19 detection kit.

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