

Digital Education in Tribal Regions of India – A Study of Various Aspects

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Abstract

E-Learning or Digital Education in tribal areas of India enabling for bridging the rural – urban divide through measures such as Ekalavya Model Residential Schools (EMRS), Digital Literature program, Digital Channels, Robotic Learning and the TALASH Initiative. Microsoft collaboration facilitating a partnership with Microsoft offers an Artificial Intelligence (AI) curriculum in English and Hindi to EMRS schools and training for training for teachers. Platform called Adi Vidyalaya strives for preserving indigenous traditions and art in digital way. Dristi Foundation is providing digital classroom initiative that helps tribal students in remote areas of our country. Program like DIKSHA-Digital Infrastructure for knowledge sharing, e Patashala, Swayam Prabha channels, Shala Darpan, Shala Siddha, E-Grandhalaya, DISHA, PMGDISHA etc., are providing digital education for Tribal students generally who live in villages of India. UNISED India is working with working with divers government sponsored program on Digital education and virtual learning towards the success of Digital India following inclusive way that facilitating digital education for tribal students through subverting Digital divide in India.

Key words: *Digital Education; Rural -Urban divide; EMRS; Artificial Intelligence (AI); DIKSHA-Digital infrastructure; ICT; UNISED INDIA Virtual learning; TRIBAL Students*

Introduction:

Indian tribals are the least developed in field of education along with other fields. Efforts are being done by governments at central and state levels to develop education status among tribals. Part of this, Government is also striving for providing digital education for tribal students of rural India. Digital education in tribal areas enabling for bridging the rural-urban divide through measures such as Ekalavya Model Residential Schools (EMRS) Digital literacy program, digital channels robotic learning and TALASH initiative. There has been a serious measure that accelerates the task of digital education and remote learning measures across the nation in general and rural areas in particular. Department of ministry of education, Government of India is implementing various remote learning measures through creative utility of Digital technology virtual learning. Virtual learning, digital learning, online learning, computer aided learning, learning through ICT, Digital learning experience, digital resources are the frequently used terms in the field of education and learning. Modern progressive education involves the application of digital technology and ICT. COVID-19 pandemic led to the fast-tracking digital initiatives particularly in rural India wild traditional education system was affected. Union government, state government and UT governments are bringing educational reforms through digital education. This measure also helps the tribal students in rural areas.

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Diverse digital initiative under Padhe Bharath Badhe Bharath (PBBB), a self-program of Sarva Shiksha Abiyan (SSA) and the same are more developed under Samagra Shiksha (SS) pedagogy of digital learning requires tools and resources.

Educational Digital Technology Measures:

Following the provisions of the Right to free and Compulsory Education Act, 2009 and its subsequent Amendments, it is imperative to ensure equity in education system learning equal access to quality teaching and learning with creative utility of resources. Digital efforts are necessary measures for forming education system in India in general and rural India in where most of the tribal children go to schools. Digital Infrastructure for knowledge sharing (DIKSHA) has been started the year-2017 by union government as a national platform for school education to solve the problems of remote learning especially in villages of India. It is facilitated for all the students of grade 1 to 12 and accessed through a web-portal and mobile use. Following the India Report Digital Education-2020, DIKSHA provides access to a large number of curricula linked e-content through several use cases and solutions like QR coded Energized textbooks (ETBs), course for teachers, quizzes and others. It is fact that India lives in the villages. Kothari Commission says, 'the destiny of India is being built in her classrooms.' All these caution us to develop rural India through diverse interventions of Digital India involving Digital Education along with "Virtual learning" Hence; it is imperative measure to provide education for tribe people. E-learning along with traditional learning makes the tribal students equal to the general students through their bright careers.

Digital India Program:

The Digital India program, initiative by Union government, brings a transformational effect on the India Digital field along with economic state of the nation. Through connecting the digital divide in India, it is easier to develop major sections of the Indian society and leverage the internal strength to gain a global leadership status. Following the wider area of the country, digital bridging the remotest village of India through broadband and high-speed internet is the crucial measure relating to infrastructure needs of the country. According to the ministry of Electronics and I.T, Digital India program is a flagship program of the govt of India with a vision to transform India into a digitally empowered society and knowledge economy. Digital Infrastructure as a core utility to every Citizen; governance and service on Demand and Digital Empowerment of Citizens is the mission of this program. This program also aimed at establishing and leveraging the unique identity (Aadhar) which provides digital identity financial inclusion, and access to the common service centers (CSC). Microsoft collaboration facilitating offers an Artificial Intelligence (AI) curriculum in English and Hindi to EMRC Schools and training for teachers. Platform called Adi Vishwavidyalaya strives for preserving indigenous tradition and art in digital way.

Digital transformation continues to define the education landscape. The Budget proposes expansion of national digital platforms, strengthening online repositories and promoting blended learning models. Investments in rural connectivity, digital classrooms and national online learning platforms aim to ensure that geography does not determine opportunity. At the same time, policymakers recognize that technology is a tool-not a substitute for mentorship. Balanced digital usage, teacher facilitation and community engagement remain essential to preserving the human dimension of education. Capacity building of teachers forms a critical pillar. Continuous professional development aligned with NEP reforms integrates technology with pedagogy. Faculty development initiatives seek to raise instructional quality while embedding innovation in teaching methodologies.

National e-Governance plan (2005) paved the way for e-Governances as a method forward to facilitate delivery of public services to the masses. Indian economy's growth trend is maintained through adoption of digitalization technologies for developing the fields of agriculture, rural sector, agri-food value chain and processed-food Initiatives such as e-Health, e-education and various citizen services, long-scale skill development program are assisting to grow Indian rural economy through promoting inclusive rural entrepreneurship and innovation particularly

for rural youth and women. These measures help tribal people for their development. The National Digital Health mission (NDHM) also emerged as landmark task of government having digital solutions.

The Digital India program launched new initiatives so that the existing programs to be reflect, revamped and re-emphasized, to ensure alignment to the goals of Digital India program. A digital platform called “my gov” (<http://my.gov.in/>) establishing recently to provide collaborative and participative governance under this program. The government of India has been prioritization wider implementation of e-Governance schemes so that the digital India program benefits rural masses. E-governance is the strategy to facilitate and manage government services electronically that empowers citizens through easy access to information. Central government is implementing national e-Governance plan (NeGP) through organized, structured and institutionalized approach. Department of electronics and Information Technology (DEIT) and Department of Administrative Reforms and Public Grievances (DAR&PG) working collectively to achieve the objectives of NeGP. Drishti Foundation is providing digital class room initiate that helps tribal students in remote villages of India. Programs such as DIKSHA-Digital Infrastructures for knowledge for knowledge sharing, e - patashala, Swayam Prabha channels, Shala Darpan, Shala siddhi, E-Granthalaya, DISHA, PMGDISHA, ICT Scheme under Samagra Shiksha are providing digital education for tribal students of remote villages. UNISED INDIA is working implementing various digital initiatives. All these measures by government will develop Digital Education and Virtual Learning among tribal students following inclusive development towards VIKSIT BHARAT-2047.

PM E- VIDYA:

A comprehensive measure called PM e-VIDYA has been initiated by central government Approximately 250 million school children are going to get benefit across the nation on 17th May 2020. It enables for the achieving goals of national Education policy (NEP) - 2020. This measure highlights technology to make education accessible to all students including remote rural areas. key components of this program, pm e-VIDYA are DIKSHA (Digital Infrastructure for school Education), PM e - vidya DTH TV channels, SWAYAM (study webs of active-learning for young Aspiring Minds), Radio, Community Radio & CBSE Podcast - Shiksha Vani, Digitally Accessible Information System (AISY), Virtual labs & Skilling e-labs and e-Content for Teachers Digital Infrastructure for knowledge Sharing (DIKSHA) has been launched by Central government of India in 2017 which acts a national for school education to solve the issues and challenges of remote learning particularly in villages of India .It is accessible for the all students of grades 1 to 12 and will be accessed through a web portal and mobile use. This program offers access to a wide range of curriculum relating e-content via many use cases and solutions like QR coded Energized Textbooks (ETBs), courses for teachers, quizzes and others.

e - Patashala is a joint measure of government for the goal of showcasing and disseminating all educational e-resources involving audio-video resources, periodicals and wide range of other digital resources. The e - Patashala Mobile app is structured to solve the problem of digital divide of rural India by enabling the communities of teachers, student's educators and parents ease of access to e- Books, ICT interventions and several other virtual and digital resources. In this way, it serves rural Indian people to access hard and soft materials through mobile apps and websites. Swayam Prabha channels are the access to digital education via TV channels while Swayam Prabha DTH channels help and reach the people who do have access to the internet. By the 2020, 32 channels landmarked for school education along with higher education. The Digital Saksharata Abhiyan or National Digital Literacy mission (NDLM) Scheme was structured to provide IT training to Anganwadi workers, ASHA workers and authorized ration dealers in all the states and UTs of India. Villagers of India get benefit from this national scheme Pradhan Mantri Gramin Digital Saksharata Abhiyan (PM G DISHA) scheme empowers the citizens of India especially rural area of our country through training them to access to the Digital India measures through operating digital devices.

The important focus is to reduce the digital divide specially marginalized sections. The other digital measures like Shiksha vani, knowledge management system (LMS), Online labs (OL ABS), National knowledge Network

(NKN) SMS-Based mid-day meal Monitoring scheme, management and Information system (PMIS), Swagamy Pusthakalaya are serving the people especially in rural areas. UNISED INDIA is implementing several digital measures specially in villages of India which involves Low Cost and No Cost e- resources, Project Based learning, Solar energy Operated smart classes, ICT Integrated Education, Capacity Building on Early Grade pedagogy and Virtual Learning and Unique intervention under Rashtriya Aiksha Abhiyan (RAA) Shala Darpan is an e- Government play form acting as facilitator for all Kendriya Vidyalaya across the country involving rural India shala siddhi is the National Program for school standards and Evaluation (NPSSE) which acts as a comprehensive instrument for school evaluation paving the way for school improvement. Central government state government and UT government are supporting the schools along with rural school in their self-appraisal and development. The NROER-National Repository of open educational resources NRORR welcomes wide range of educational resources in several subjects and in various Indian languages for primary, secondary and higher secondary classes.

The ICT scheme under Samagra Shiksha connected the endeavors of Computer Aided Learning (CAL) of Sarva Shiksha Abhiyan (SSA) with the ICT interventions of Rashtriya Madhyamik Shiksha Abhiyan (RMSA) through assisting them for their creative sharing and innovation digitalization for improving access, efficiency and quality in being provided by Central, state and UT government. NISHTHA is a national teachers training program having 42 lakh teachers scrolling out on DIKSHA by NCERT utilizing online courses. During the COVID Pandemic, 15 states became ready to roll out online teacher training programs on DIKSHA. Between April to June 2020 total enrollments of teachers for courses were 6 million. Central governments programs utilize DIKSHA for COVID-19 pandemic training of doctors, nurses, NCC, NSS, NYKS volunteers and ASHA workers.

EMRS

Ekalavya Model Residential Schools (EMRS) are fully residential schools managed by central government to provide quality education to scheduled Tribes (ST) students in remote areas these schools are run for ST and PVTG (particularly vulnerable tribal groups) students. There are, as of February 2026, 499 Ekalavya Model Residential Schools (EMRS) across India. These schools follow many particular support systems managed by NESTS. EMRS got became famous as “islands of excellence” through gaining significant remarkable achievements in national entrance exams, sports and cultural competitions across the nation. Therefore, EMRSs are serving to develop education among tribal children with greater success The initiatives of Central government, state and UT governments are developing digital skill among tribal people and students.

Conclusion:

Digital India has transformed rural India considerably. Now connectivity in villages has improved, innovation has been promoted, the condition of skill development and education has improved, new employment opportunities have opened up and entrepreneurship has also been promoted. These changes are clearly visible in large infrastructure projects, targeted skill development programmes and digital platforms, which are empowering rural citizens and businesses.² The important is connected to the infrastructure specially telecom/broadband infrastructure and power supply. The smart phones which are able to receive government services are being used by entire population. A large number of citizens in rural India use feature phones that limit their ability to access services electronically in rural India, still there are lower levels of literacy rate in rural India is 67.67 percent while in urban area has 84 percent. Another problem is IT awareness and IT literacy among the literate. A significant number of citizens have difficulty to manage digital equipment and internet that they access ICTs in a little manner. India is a country where diversity, having many languages, play key role. Extremely limited numbers of citizens know English which is the fundamental language for digital activities. This situation resists people's ability to follow the advantage of the digital process. Despite government is training to make these digital systems available in Indian languages as well but the process

follows its own time became of the large number of languages in India. Therefore, the main problem, the Digital Divide is still going on. The connecting of various networks, interfaces/platforms among various states became a bigger challenge in implementation of Digital India program. Interoperability of solutions, privacy, security and numerous services interactions have been consistently confronted by the agencies. Lack of highly skilled people, more population, different languages and the distributed control of subject among the states and center are major challenges in the process of digitalization.

Following Atmanirbhar Bharat Abhiyan, PM Narendra Modi announced, in 2020, a special economic and comprehensive package for self-reliant India. Education has been recognized as important field with the main post-COVID concept of Technology -Driven Education with Equity. The implementation of Digital India program needs huge budget outlay that became an economic challenge. Despite all these hurdles, governments are striving for provide the services of digital technology so that today most of the rural people are applying online activities. At this juncture, authorities recognized the role of educational technology and providing the tribal students. Decentralization of digitalization is enabling for this task.

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