DIKSHA - Learnings from India Experience

India’s Ongoing Story of Digital Innovation in Education

Presentation by
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18th December 2020
India is big, diverse & complex

- 1.5 Million + # of Schools
- 20+ Regional language as a medium of instruction
- 60+ Educational boards of instruction across country (central & states)
- 248 Million + # of Students in schools
- 156 Million + # of students in Govt and aided schools
- 92 Million + # of students in private and other schools
- 9.4 Million + # of Teachers

Source: UDISE+ Report 2018-19(Dashboard)
We have clear policies - National Education Policy (NEP) 2020

1. **Enhance education system that contributes to an equitable and vibrant knowledge society, by providing high-quality education to all**

2. **Develops a deep sense of respect towards the fundamental rights, duties and Constitutional values, bonding with one’s country, and a conscious awareness of one’s role and responsibilities in a changing world**

3. **Instils skills, values, and dispositions that support responsible commitment to human rights, sustainable development and living, and global well-being, thereby reflecting a truly global citizen.**
Which emphasize upon Access, Capability, Quality, Equity & Outcomes

**Unique Capabilities**
Recognizing, identifying them in each student.

**Emphasize Conceptual Understanding**
Rather than rote learning and learning-for-exams

**Critical thinking and Creativity**
To encourage logical decision-making and innovation.

**Use of Technology**
In teaching and learning, removing language barriers, for Divyang students, and in educational planning and management.

**Respect for Diversity & Local Context**
In all curriculum, pedagogy, and policy.

**Equity & Inclusion**
As the cornerstone of all educational decisions

**Continuous Review**
Based on sustained research and regular assessment by educational experts.

**Community Participation**
Encouragement and facilitation for true philanthropic private and community participation.
To ensure access and opportunity to all children

To implement these policies, we wanted digital innovations that can work at our scale, diversity & complexity

- Extensible
- Flexible
- Fits existing institutional structures
- Evolvable
- Enabling ability to see & monitor
- Federated
National Education Policy (NEP) 2020 has multiple provisions for inculcating and promoting digital innovations … (1/2)

<table>
<thead>
<tr>
<th>Content creation, digital repository, and dissemination</th>
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<tr>
<td>• Coursework, Learning Games &amp; Simulations, item banks, TPD, virtual labs</td>
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<td>• Augmented Reality and Virtual Reality apps,</td>
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<td>• Gamification of Indian art and culture</td>
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<th>Addressing the digital divide and equity</th>
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<td>• Use of television, radio, and community radio;</td>
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<td>• Removing language barriers - Content in all Indian languages;</td>
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<td>• e-content for disabled students.</td>
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<td>• ICT integrated pedagogy</td>
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<td>• How to become high-quality online content creators themselves</td>
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<th>Promoting digital learning</th>
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<td>• Through different effective models of blended learning</td>
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Laying down standards

• Content
• Technology
• Pedagogy for online/digital teaching-learning
• Guidelines for e-learning by States, Boards, schools.

Mathematical and computational thinking

• Starting with the foundational stage itself, through use of puzzles/games
• Activities involving coding will be introduced in Middle Stage.

Other special areas for online learning

• Vocational courses
• Teaching of languages, and Knowledge of India
• Rich e-content for gifted children, open school, adult education, e-libraries, virtual/e-museums, etc.

NEP 2020 has multiple provisions for inculcating and promoting digital innovations ...

(... 2/2)
We wanted a plug and play digital infrastructure that could work for all of India, and not just a specific solution.
DIKSHA’s building blocks were used for multiple use cases with complete sovereign control.
Catering to diverse scenarios and user types

- **5 Personas**
  - Parent
  - Teacher
  - Student
  - Community Member
  - Administrator

- **3 Scenarios**
  - Learn
  - Help
  - Manage
  - Learn

- **2 Interactions**
  - Learning Administration
Leading to unparalleled usage of the world’s largest, most diverse school education platform

- 1.85 Billion + Learning Sessions
- 15.9 Billion + Learning Minutes
- 13.8 Billion + Page Hits
- 30+ Languages

Data till 14th December 2020

Source: diksha.gov.in
Resiliency during Covid shock: Multiple programs to continue learning & training

Energized Textbooks (ETB)
Physical Textbooks to 'Phygital' Textbooks

Content Sourcing
Sourcing high quality content in a controlled manner

National Quizzes
Interactive & competitive learning

PM eVidya
Aims to unify all efforts related to digital/online/on-air education to enable equitable multi-mode access to education

Digital Teacher Training
A nationwide capacity building programme for "Improving Quality of School Education through Integrated Teacher Training"
Coherent Access under PM eVidya program ensures inclusive, equitable access to education for all and also enabled our response to Covid

To enable coherence, the broadcast content is to be uploaded on DIKSHA, where this content is accessible any time even after the live broadcast, along with additional digital resources

State/UT is already broadcasting on TV/radio, they can use DIKSHA to achieve coherence
Bridging of physical and digital worlds by ‘energizing’ textbooks...

Instant, relevant, trusted help:
‘Energised’ textbooks with QR codes

- 3500 + Energized Textbooks with QR codes on DIKSHA
- 600 Million + energized textbooks have been printed and distributed across the country
- 180 Million + students
- 7 Million + teachers
...which lead to ease of access to relevant digital content across the nation and enable continuity of learning

State board, Grade 5th Textbook

NCERT, Grade 8th textbook

In a small village in Tanzania, Africa, Mamba gets up very early in the morning to fetch water. She has to walk a long way and returns after a few hours. She then helps her mother in the house and joins her brothers in taking care of their goats. All her family owns is a piece of rocky land around their small hut. Mamba’s father can barely grow some maize and beans on it after tilling hard. This is not enough to feed their family for the whole year.

Peter lives in the heart of the sheep rearing region in New Zealand where his family runs a wool processing factory. Everyday when he returns from school, Peter usually has to help his uncle tending the sheep. The farm is situated on a small grazing plain with hills in the far distance. It is managed in a scientific way using the latest technology. Peter’s family also grows vegetables through the year.

Mamba and Peter stay in two different parts of the world and lead very different lives. This difference is because of the differences in the quality of land, soil, water, natural vegetation, animals and the usage of technology. The availability of such resources is the main reason places differ from each other.

LAND

Land is among the most important natural resources. It covers only about thirty per cent of the total area of the earth’s surface and all parts of this small percentage are not habitable.

The uneven distribution of population in different parts of the world is mainly due to varied characteristics

e-Textbooks
Explanation Resources
Practice Resources
Learning Resources
Teacher Focused Resources

QR Code linking to relevant e-content (student and teacher facing content)
Enabling learning in 30+ languages
Digital Teacher Training has enabled continuity in training of teachers during Covid and is a world record in the making

18 Modules
Contextualised and translated in 10 regional languages for NISHTHA

3 Months
Program Time v/s Full last year

2.5 Million +
teachers trained at primary and upper primary level (grades 1-8)

Trained at 5% cost
and 4x speed

Data till 15th December 2020
We also conducted a variety of assessments

5 Questions a Week (5QAW)

5 questions are shared every week to enhance higher order competencies of learners and connect learning with real life solutions

Quizzes on DIKSHA

Quizzes on joyful mathematics, science, reading comprehension Constitution of India, Yoga, etc. have been launched on DIKSHA

Quizzes promote Interactive, engaging and competitive learning
States doing VidyaDaan

Central Organizations (NCERT and CBSE) doing VidyaDaan

14

States doing VidyaDaan

2

Digital content contributed through VidyaDaan

38,000+

Digital content approved through VidyaDaan

29,000+

A program of the nation, for the nation and by the nation to ensure continuity of quality learning.

VidyaDaan - a program to source high quality content in a controlled manner leading to diversity in content
Teachers play a crucial role in content development (1/2)

Journey of a content starts with storyboarding which visualises creator’s thoughts

Teachers pledging to pioneer the movement of teacher created content
Teachers play a crucial role in content development (2/2)

Experienced creators coach new content creators to develop digital content

Dedicated subject matter experts thoroughly review the content as per the guidelines

Felicitation of content creators and reviewers for their valuable contribution
Programs follow a well defined decentralised model of content contribution and review governed by central and state institutional structures to ensure quality.
Leading to variety & diversity in content

- 1,40,000+ Content and Courses
- 15000+ Organizations and Individuals contributed
- 40+ State institutions and Central Organizations
- Content is available in 30+ languages

A journey from content to competence
...including content for Children With Special Needs

Content for hearing impaired in sign language

Content for visually impaired in Digital Accessible Information System (DAISY)
DIKSHA is built on free open source platform “SUNBIRD”
‘Made in India’, ‘Made for the World’

sunbird.org  
github.com/project-sunbird  
docs.sunbird.org
Built through collaborative PPP (Public Private Partnership)

Ministry of Education
Government of India

DIKSHA Programme Sponsor

EkStep Foundation:
Open-Source Technology and Program Management Partner

DIKSHA Programme Owner

Partner to Enable Implementation
Implemented through our existing federated and decentralised structure

- **State institutional setup** - Steering committee, Working group
- Programs ownership, funding, execution
- State Budget
- State Teams
- 35 + states and central organisations

**Programme Sponsor**

**Steering Committee**
- Guides, Coordinates, Support with budgets
- DIKSHA PMU
- MoE Budget
- Light touch program structure

**Programme Owner**

National Council of Educational Research & Training (NCERT)
Allowing states like Gujarat to innovate and go micro to drive improvements
And, helping us see & monitor policy implementation and drive reforms
In Summary, here’s ‘the Recipe’ from our DIKSHA journey

- **Consider your Policies**

- **Take & Tweak** Technology to build/modify sovereign solution(s) as per sovereign control

- **Plug & Play (implement)** in the context of Programs & Budgets with accountability mechanisms & existing institutional structures

- **Measure & Improve** through Data (Ability to See) and navigate reforms to policy destination

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**You too can do this-** Sovereign programs, Sovereign solutions, Ability to See to help you drive reforms and find your own path to meet your policy objectives.
Appendix 1 - DIKSHA & Technology
DIKSHA is a customizable National Digital Infrastructure that states can use for their respective teacher-centric initiatives. Teachers will be able to use DIKSHA to access and create high quality teaching, learning and assessment resources for all subjects and levels in all Indian languages. **DIKSHA aims to strengthen ‘Our Teachers, Our Heroes’**

On the occasion of Teacher’s day, Hon. Vice President of India, dedicated DIKSHA, A National digital Infrastructure for Teachers, to the nation

“Technology will be used to upgrade the skills of teachers through the recently launched digital portal DIKSHA”

PM eVIDYA’ programme will consist of ‘DIKSHA’ involving e-content and QR coded energized textbooks for all grades and will be called as ‘one nation, one digital platform’.

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**Shri Prakash Javadekar**
DIKSHA Strategy Paper
May 2017

**Shri Venkaiah Naidu**
National Teacher’s Day September 2017

**Late Shri Arun Jaitley**
Budget Speech February 2018

**Nirmala Sitharaman**
Union Finance Minister May 2020
DIKSHA is the “ONE NATION ONE PLATFORM” for School Education

- **PM eVIDYA**: A programme for multi-mode access to digital/online education to be launched immediately; consisting of:
  - DIKSHA for school education in states/UTs: e-content and QR coded energized textbooks for all grades (**one nation, one digital platform**)
  - One earmarked TV channel per class from 1 to 12 (**one class, one channel**)
  - Extensive use of **radio**, community radio and podcasts
  - Special e-content for visually and hearing impaired
  - **Top 100 universities** will be permitted to automatically start online courses by 30th May, 2020

@nsitharamanoffc nirmala.sitharaman nsitharaman
DIKSHA is built using strong technology architecture principles

- Unbundled not monolithic
- Microservices and API based
- Interoperable
- Evolvable
- Configurable
- Multi-tenant
- Observable through data
- Scalable
- Resilient
- Extensible
- Privacy and security “by design”
- Allows unified system, but not uniform
DIKSHA is built keeping Indian requirements in mind

- Changing learning paradigm of micro-content, on-demand, continuous process of learning anytime anywhere
- Federal structure of India’s education
- Scaling to entire population of India
- Diversity of languages, use cases, and contexts including learning domains beyond school education (skilling, health, financial literacy, etc)
- Addresses connectivity & device diversity
- Openness and interoperability for content, taxonomy, credentials, & data
- Ecosystem approach - participation of government, civil society and private organisations for coverage, inclusion, quality, and innovation
- Using data for smart policy making, implementation, monitoring for continuous evolution
Appendix 2 - Programs
PM eVidya, a comprehensive initiative for addressing the COVID-19 challenges pertaining to teaching and learning in the country was announced on 17th May 2020
PM eVidya is a programme for multi-mode access to online education for ensuring inclusive and equitable access to education...

**DIKSHA** - One nation, One digital platform for school education

Use of **radio**, community radio and podcast

**One class, One channel** – 12 channels of PM eVidya

**IITPAL** for IIT-JEE / NEET preparation

**SWAYAM MOOCs** for school and higher education

**Digital Education for the differently-abled**

**Manodarpan**

*Initiative for psychosocial support of students, teachers and families*

**National Curriculum**

*New National Curriculum & Pedagogical framework for school, early childhood and teachers*

**Foundational Literacy & Numeracy (FLN)**

*National FLN Mission for ensuring that every child attains Learning levels and outcomes in grade 5 by 2025*
I have missed the first half of this session, what should I do?

Don’t worry! Just scan the QR code on screen using DIKSHA app on your phone.

wherein DIKSHA has played a key role in “Coherent access- inclusive, equitable access to education” while offering flexibility of synchronous & asynchronous options.
PM eVidya was launched on 17th May, 2020 to unify efforts of digital education & enable equitable multimodal access.
The phenomenal rise in adoption of DIKSHA during the pandemic highlights the relevance of digital teaching-learning solutions as on date...

Journey of 1 B+ learning session

Learning Sessions on DIKSHA (in Billion)

Journey of 10 B+ page hits

Average Daily Page Hits (in Millions)

DIKSHA crossed 10 Billion page hits for AY 2020-21
... enabling diverse use-cases
...and can be accessed across multiple device interfaces - both online and offline
Building competencies among all the teachers through Digital Courses on DIKSHA

Strategies for Improving Classroom Processes

Integration of ICT in Teaching-Learning and Assessment

Art integrated Learning

School Based Assessment

Generic concerns

Curriculum and Inclusive Education

Developing Social - Personal Qualities and Creating Safe and Healthy School Environment

Health and Well-being in Schools

Integrating Gender in Teaching Learning Process

Subject-specific Pedagogies

01 Pedagogy of Environmental Studies (Primary Stage)

02 Pedagogy of Mathematics

03 Pedagogy of Social Sciences (Upper Primary Stage)

04 Pedagogy of Languages

05 Pedagogy of Science (Upper Primary Stage)

SYSTEMIC CONCERNS

School Leadership: Concepts and Application

Initiatives in School Education

Pre-School Education

Pre-Vocational Education

Covid-19 Scenario: Addressing Challenges in School Education

CSA and POCSO
It has given speed to our ability to analyze and see performance (Cluster Level)
<table>
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<th>Indicator wise performance (Maths) by grade and district</th>
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We can zoom into specific LOs & drive targeted interventions by subject, grades & area - Gujarati language (teacher training, remediation campaigns)
Continuous data measurement, monitoring and improvement framework in Gujarat
Thank You