Integrating ICTs into Education
Policy and Programme

Global symposium on ICTs and Education
Korea
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Agenda

- Need for ICTs in education policy
- Shift in ICT paradigm
- National Policy on ICTs in Education, MHRD June 2012
- National Curricular Framework for Teacher Education, 2010
- Policy on ICTs for Teacher Education – MHRD 12 plan
- The Karnataka experience
Need for ICT in education policy

- ICT has huge potential in education
- However, its useful application requires deep education + technology understanding, else
  - Ad-hoc and inconsistent decision making
  - Inability to pro-actively take advantage of ICTs
  - Vendor driven programmes that are “procurement based” and not “process based”
- Policy can provide **coherent, consistent and comprehensive** approach to integrating ICTs in education in a systemic manner
  - Academic + Vocational + Administrative
  - Individual + Institutional + Systemic
- **Policy can support the move from 1st to 2nd generation ICT models**
ICT 1.0 (first generation paradigm)

- Technology experts / company led
- Focus largely on computer literacy

- ICT is 'another subject', unconnected with core curriculum (limited integration with subject teaching)

- 'Computer faculty' with little knowledge about education, work with children, bypassing teachers

- Result
  - Limited ownership of school/teacher
  - Limited impact on teaching-learning/education
  - Novelty of ICTs wears off
  - Does not sustain post project period
ICT 2.0 (Second generation paradigm)

- Led by teachers / educationists
- Focus on integration with subject teaching
- Work with children through regular teachers, integrating ICTs into mainstream education
- Focus on teacher educators for institutional and systemic change

**Result** -
- Higher ownership of school/teacher
- Creation of teachers networks of learning
- Creation of digital resources (rich learning environment)

- Meaningful impact on teaching-learning/education
- ICT not seen as a 'subject' but a pedagogical resource
Technology paradigm shift

- For a successful new technology introduction in a domain – expertise is required both in technology and in domain

- First generation of technology introduction is by those familiar with the technology but not with domain

- However it is when those in the domain 'take-over' the technology, that its introduction becomes effective and addresses core issues and aims of domain

- We are now moving from first generation ICT to second generation ICT models, guided by 2 pioneering ICT policies in India
Using a large variety of ICT tools, resources and methods for supporting learning

Creating and publishing digital learning resources

Vocational Education

Free and Open Source Software and content for universal and equitable access

Blended learning (enriching distance learning)

Critical understanding of ICTs in education
“It is necessary to conceive ways in which teachers can opt for different kinds of trainings, on interest and requirement.

“For this, it would be necessary for training schedules to be announced well in advance (at the end of each academic year, for the next year) and for processes to be in place to enable teachers to register for trainings they wish to undergo.

“Allocation of funds, training dates, duration and other logistics would need to be made more decentralized and based on individual teacher’s preferences.

Such a new paradigm of teacher education is possible with the meaningful integration of ICTs.
ICT integration in TE – MHRD 12 Plan guidelines

- Public software for a constructive environment
  - Use of large number of educational software tools
    - Geogebra, KBruch (maths)
    - Phet, Step, Kalzium (science)
    - Kgeography, Marble (geography)
    - K Anagaram, Childsplay (english)

- Focus on OER creation
  - Text and multi-media resources
  - Peer review and refinement
  - Publishing for universal access

- Focus on institutional strengthening

- Karnataka is pioneering implementation of these visionary national policies in its programmes
Karnataka state in India

61 million Kannadigas
12 million students
200,000 teachers in 50,000 schools
4,000 Government high schools
34 educational districts and 202 educational blocks
30 DIETs (District Institutes of Education and Training) and 175 Block Resource Centres and 6000 Cluster Resource Centres
Karnataka's pioneering experience

- ICT programmes in schools
  - Mahiti Sindhu, ICT@Schools
- Subject Teacher Forums
  - Integrating ICTs into core subject teaching
- KOER
  - Collaborative creation of contextual learning resources on scale
- Samartha
  - TE institutions using ICTs to connect and create
- NVEQF
  - Vocational education (IT)
- Radio and Satellite based interactive programmes
ICT Programs in schools

- Mahiti Sindhu
  - Covered 1000 schools, begun in 2000
- ICT@Schools Phase 1, 2 and 3
  - Covering around 480, 1500 and 4500 schools
- Outsourced model
- Useful learning from these programmes a good foundation for our second generation programmes
  - Subject Teacher Forum, RMSA and DSERT
  - CALC, SSA and DSERT
  - Teacher Education Institution ICT Integration (12 plan)
Subject Teacher Forum – a second generation programme

Karnataka Subject Teacher Forum programme incorporates elements of all these to create new blended model of TE

Use of ICTs is driven by strong pedagogic principles, emphasising aspects of independent, need-based and self-paced learning with continuous mentoring and peer learning

- Leveraging technology to build teacher professional networks - a model for continuous education

- Building a resource rich environment and have a repository where teaching learning resources are acquired, contextualised and created by the teachers

- Preparing teachers to integrate ICTs into teaching and supporting the inclusion of ICTs in the syllabus
STF – A new TE model visioned by NCFTE

- On-site, hands-on workshops combined with resource support on an email list as well as a web portal to support teachers and training resource persons
  - Subject Teacher Forums in Mathematics, Science Social Science and English
- Teachers, Resource Persons and DIETs are continuously in touch over email and resources are shared
- ICT training as well as subject training integrated and delivered in-house for the first time
- 350+ resource persons from 34 districts have in cascade model trained over 4500 teachers from 1500 schools
  - Mailing lists – connecting to peers, District mailing groups
    - 8000 emails crossed
Over 30 mailing groups (virtual forums) have been created in Karnataka Education

By Subject – Maths, Science, Social Science, English

By Geography – State, District, Taluka

By profile - HPS teachers, HS teachers, teacher educators, curriculum design

Special lists – KOER, Volunteers
KOER - Pioneering new learning resource model

- Members of Subject Teacher Forum in Mathematics, Science Social Science and English create resources
  - Text
  - Audio-visual
  - web-links
  - Seek help
  - Share resources
  - Review / comment on resources
  - Email forum for sharing teaching-learning processes and classrooms ideas
  - Wiki for resource sharing and access
  - New peer-model for OER creation-contextualisation
Welcome to Karnataka Online Educational Resources
Create resources online collaboratively

21 articles in English

Welcome to the website for Karnataka school teachers!

This page was last modified on 6 November 2012, at 03:48.

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NVEQF- IT

- Introducing Vocational education for IT skills
  - ICT infrastructure maintenance
  - Data entry and desktop publishing
  - Graphics and design
  - Video and audio editing
  - Cyber security
  - Information management
- Using an in-sourced / integrated approach
- Using high quality public tools for scale and sustainability
Plans for coming years

- Extending STF and NVEQF–IT to cover all high schools
- KOER - Wiki based OER
  - Classes 6-10 (eventually 1 through 12)
  - Locally relevant/contextual resources
  - Local languages, Local cultures, needs and priorities
- School wiki and School Management system
- Blended learning models
  - e-learning systems – structured learning (Moodle)
- Karnataka ICT policy in Education
  - Based on National policies and local priorities
Lunar eclipse with Stellarium

Thank You
감사합니다
Gamsahabnida

Geogebra