E-Content Development for Indian Higher Education

Dr. S. Senthilnathan
Department of
Educational Technology
Bharathidasan University
Tiruchirappalli, India.

edutechsenthil@gmail.com

Three Fundamental Roles of ICT

- Infrastructure for accessing information and sharing knowledge at any time from anywhere at a low cost.

Three Fundamental Roles of ICT

- **Transformative technology that reshapes all types of processes and sectors of modern and traditional economies.**

Three Fundamental Roles of ICT

- Infrastructure for connecting people and enabling stakeholders to communicate and organize themselves .

Visions enabled by ICT

- Information Society
- Knowledge Economy
- Connected Economy
- Learning Society

Information Societies

Information Societies

Countries in which information workers are more numerous than such occupational categories as farmers, industrial workers or service workers.

India as an Information Society

- India as a nation stands far from becoming an Information Society with
  - 25% of its workers in Service Occupations,
  - 60% of them in Farming and
  - 15% of them in Factories.

India as an Information Society

- Of the 25% in Service Occupations, tens of million are Information Workers.
- India has more Information Workers than Japan and about the same number as the US.
- Thus, India has an Information Society within the nation of about one billion people.

Progress Figures of India

- “By the end of 2008, more than one billion PCs will be in use”

  -Worldwide PC Adoption Forecast 2007–2015, Forrester Research.

- The emerging BRIC Market (Brazil, Russia, China and India) will account for more than 775 million new PCs by 2015.

Progress Figures of India

India's Internet Population

- 2005 – 2006 – 38.5 Million
- 2007 – 2008 – More than 100 million.

Progress Figures of India

- By 2008 India will build a web-enabled industry of $17 billion .

- Between 2008-2010, India's Annual Export Revenues from the IT sector will hit $50 billion.

  - Nasscomm – Mc Kinsey Report, 2007

Progress Figures of India

Worldwide Revenue from E-Learning Industry

- In 2003 - $ 6 Billion
- In 2008 - $ 21 Billion

India's Share

- In 2008 - $ 10 Million

ICT – Educational Implications

- ICT revolution, being the beginning of Knowledge / Information Society ascribes education a central role.

ICT – Educational Implications

Tremendous challenges to educators

- **to rethink their basic tenets.**
- **to deploy the media in creative and productive way and**
- **to restructure education to respond constructively and progressively to the technological and social changes.**

Revolution in Indian Education Scene

- Establishment of IT Task Force in 1998.
- Formulation of National Informatics Policy.
- The Task Force's First Report with 108 recommendations.
- Special section entitled 'Operation Knowledge' with 29 recommendations.
- Call for a National Campaign for Universal Computer Literacy.

Revolution in Indian Education Scene

- Strengthening of IT programmes in Universities and establishment of SMART schools.
- Connecting all institutions of higher learning through broad band connectivity under National Mission for Education through ICT.
- 5.02 billion Indian Rupees allotted for the project with focus on networking of institutions and developing e-content.

Revolution in Indian Education Scene

- E-content under the project will be developed and made available through the Internet, Cable TV Networks and Direct-to-Home Systems.

Edusat and its Implications

- India, the only nation with an exclusive thematic satellite dedicated to education.
- The Mission – 'Educating the Nation'.
- 72 Television Channels, hundreds of FM Radio Channels, Seamless Tele and Video conferencing facilities and many more digital services.

Edusat and its Implications

- 28 Television Channels each for Higher Education and School Education with the remaining meant for Health, Culture, Women Development etc.,

- Gyan Darshan (GD) Network with GD-I for Education and Distance Education, GD-II for Interactive Distance Education, GD-III (Ekalavya) for Engineering Education, GD-IV (Vyas) for Higher Education.

E-Learning and E-content Development

- E-Learning – delivery of content through electronic media; it builds on the unique, dynamic characteristics of digital content to foster productive and engaging learning.
- Access to high quality, culturally relevant digital content – an essential condition for effective ICT enabled teaching and learning.

Knowledge Packaging – Indian Scenario

- The need for packaging knowledge in digital forms is more pronounced than ever as greater number of Indian learners (360 million in the 18-23 age group) want access to high quality learning content.

E-Content Development – Indian Scenario

- Responding to the need, concerted efforts have been initiated for e-content creation by a variety of agencies through a variety of schemes.

E-Content Development – Indian Scenario

- University Grants Commission's Consortium for Educational Communication (UGC – CEC)
- National Programme on Technology Enabled Learning (NPTEL)

UGC - CEC

- UGC's establishment of Educational Media Research Centres (EMRCs) and Audio Visual Research Centres (AVRCs) in 1984, to package knowledge in audio and video forms and make them available through television under the name "Countrywide Class Room".

UGC - CEC

- Establishment of CEC to coordinate the production activities of EMRCs and AVRCs located in 17 Universities.

- During the 10th Five Year Plan (2002-2007) the conversion of EMRCs and AVRCs into EMMRCs (Educational Multimedia Research Centres) for creating web-based learning resources or e-content.

UGC - CEC

- All EMMRCs with necessary platform and technology for e-content development.
- CEC conducts three week Capacity Development Programmes for Higher Education teachers in on-site mode and in remote-site mode through seamless videoconferencing using Edusat Network.
- CEC provides funding to the Higher Education teachers through several schemes for e-content development.

UGC - CEC

CEC coordinates production of e-content

- UGC Model curriculum based educational programmes.
- Syllabus based programmes for undergraduate and postgraduate students.
- Short Reusable Learning Objects for the use of teachers or the web casting.

Content Developers are linked to EMMRCs for Training and Technical support.

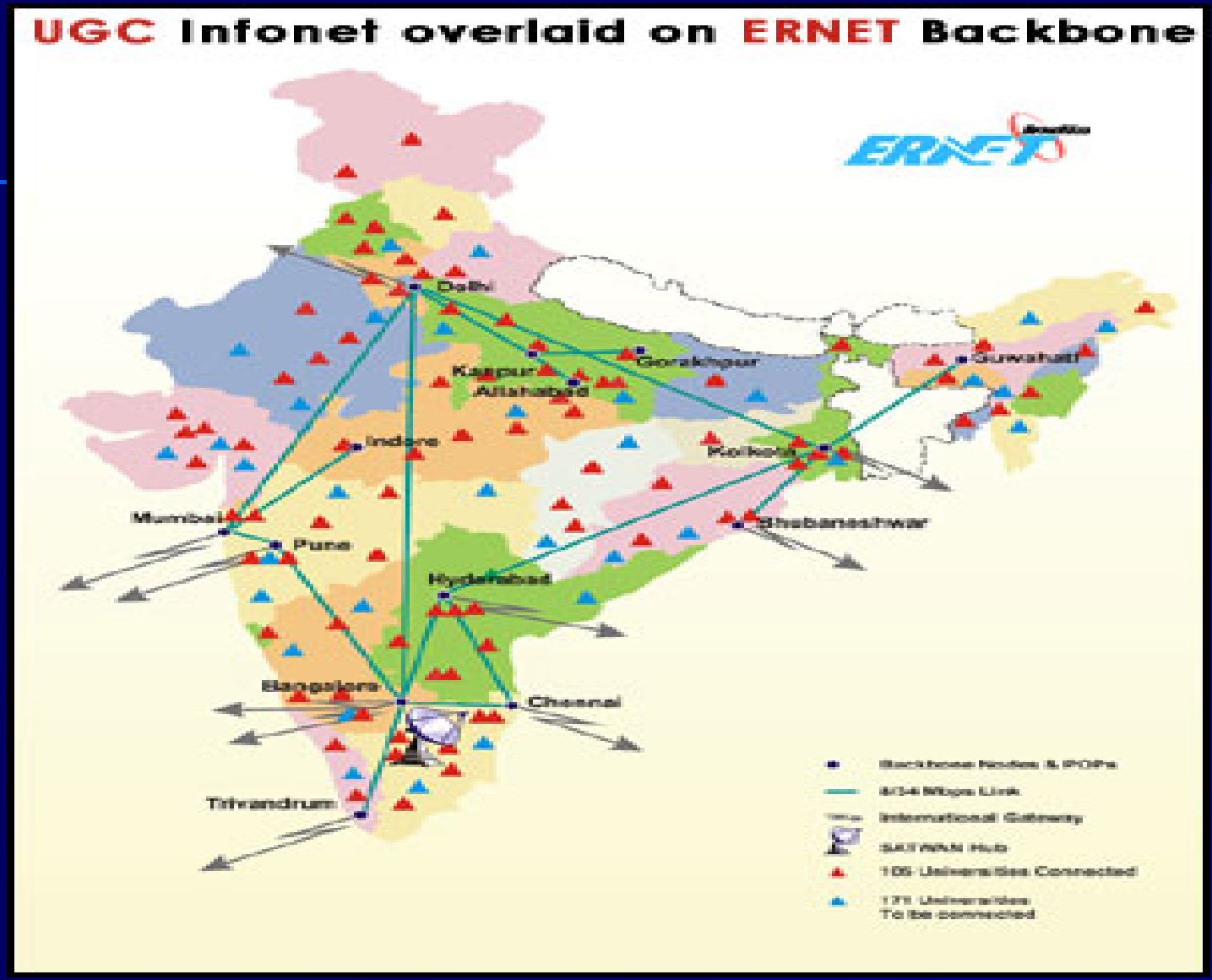
UGC - CEC

- CEC has a Learning Object Repository (LOR) and has collaborated with Commonwealth of Learning (COL) for mutually sharing its Reusable Learning Object Repository (EduSource)

UGC - CEC

Future Plans

- Providing educational video programmes in streaming format through UGC -INFONET, which is the UGC's nationwide communication network.
- Converting the educational video programmes into digital format with multimedia inputs for dissemination on Video-On-Demand mode.


UGC Infonet overlaid on ERNET Backbone
ERNET
Delhi
Gorakhpur
Guwahati
Kanpur
Allahabad
Indore
Kolkata
Mumbai
Pune
Bhubaneshwar
Hyderabad
Bangalore
Chennai
Trivandrum
Backbone Nodes & POPs
2/34 Mbps Link
International Gateway
SAFAIRAN Hub
105 Universities Connected
171 Universities To be connected

NPTEL

- A project funded by the Ministry of Human Resource Development.
- The objective is to integrate multimedia and web technologies to enhance learning of basic science and engineering concepts.
- Initially a joint venture of Seven Indian Institutes of Technology (IITs), Indian Institute of Science (IISc) and National Institute of Technical Teachers' Training and Research (NITTR) in 1999.

NPTEL

- Inclusion of Indian Institutes of Management (IIMs) and Collaboration with Carnegie Mellon University (CMU)
- MoU among five IITs, four IIMs and CMU led to the establishment of Virtual Centre for Technology Enhanced Learning (VCTEL)
- MHRD's funding to the tune of 2 billion Indian Rupees.

NPTEL

- The first phase of the programme by extension has come to an end in June 2007 with an output of Video and Web-based courses in undergraduate science and engineering disciplines.
- Dissemination through two modes - Digital Video Lectures on Ekalavya, the 24 hours Technical Education Television Channel and Web-based Courses.

Indian Higher Education in Transition

- 10 Million Students
- 400+ Universities
- 18,000+ Colleges
- 2 Million Teachers

Indian Higher Education in Transition

- XI Five Year Plan – 'academic five year plan'
- Enhancing GER from 10 % to 15% by 2012
- Creation of 1500 new Universities

Indian Higher Education in Transition

- 30 Central Universities
- 14 World Class Universities
- 8 IITs
- 7 IIMs
- 10 NITs
- 20 II²Ts

Indian Higher Education - Points of Concern

- Lower Rate of Employability of Indian Graduates
- Two-thirds of the nation's Universities and 90 % of the colleges rated below average
- Universities' curricula not synchronized with the needs of the employers.

Indian Higher Education - Points of Concern

- Widening gap between the nation's research facilities and those of the world.
- Until 2006, India's share of the scientific research publications of the world was 10%.

Indian Higher Education - Points of Concern

- In 2008, it is just 2.5 %.
- In the top 1% of the world's publications of scientific research, India's share is just 0.4%.

Indian Higher Education – Points of Concern

- None of the Indian Universities figuring out in the world's top 100 Universities.

DePauw University's 361° Model of Transforming Teaching and Learning with Technology

- Put Learning first.
- Align IT with institutional / national mission and culture.
- Technology fluency is the new liberal art.

DePauw University's 361° Model of Transforming Teaching and Learning with Technology

- Invest more in people than in hardware and software.
- Good enough is good enough.
- Support sustainable technologies.

DePauw University's 361° Model of Transforming Teaching and Learning with Technology

- Actively involve students.
- Collaboration is essential.
- Use technology to remove barriers.
- Design space for learning.

Vision of the Future

Education–to–Home (ETH)

(Vijay Bhatkar, the Architect of Param series of indigenous Super Computers)

Inspiration

“In India, we face many difficult problems. The problems are immense,

no doubt, but so is our will and our determination and so is the will of the innumerable people of India.”

- Jawaharal Nehru

Thank You

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