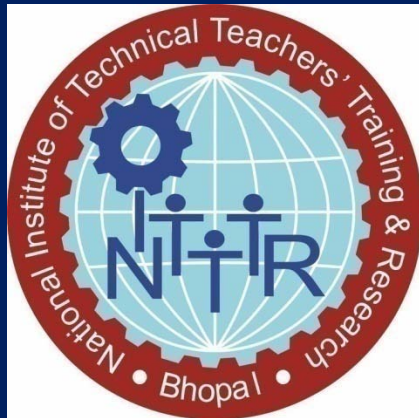# Training of Polytechnic Teachers through Blended Technologies:
A-VIEW and MOODLE Web Based Technologies in the Western Zone of India

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Growth of Technical Education in India

- Explosive growth of engineering and polytechnic institutions in last two decades

- More than 4000 Engineering Colleges

- More than 3700 Polytechnic Institutions

- About 80000 polytechnic teachers to be trained

- National Institutes of Technical Teachers' Training and Research (NITTTRs) are primary resource institutions for polytechnics

National Institutes of Technical Teachers' Training and Research (NITTTRs)

- Four institutes one for each region: North- Chandigarh, West- Bhopal, East-Kolkata and South at Chennai

Role-

- Education and training
- Curriculum Development
- Learning Resources Development
- Educational Research
- Extension Services
- Quality Improvement of Technical Education System

Approach paper to the Twelfth Five Year Plan (2012-17)

- states that "Pre-service and in-service teachers training has to be mounted on mission mode in the Twelfth Plan for which information and Communication Technology could be effectively leveraged.

- Blended mode of teaching/learning using ICT is considered effective strategy to reach out to larger population of technical teachers.

- **A-VIEW- The Versatile E-Learning Tool for Distance Education** developed by Amrita University and IIT Mumbai with the help of Ministry of Human Resource Development, Government of India.

Polytechnics in Western Region (901)

- Madhya Pradesh : 63 nos.

- Chhattisgarh : 42 nos.

- Gujarat : 125 nos.

- Maharashtra : 659 nos.

- Goa : 10 nos.

- Daman and Diu : 1 no.

- Dadra and Nagar Haveli : 1 no.

Having about 18000 teachers

NITTTR Bhopal's Strategy

- Train 3000 teachers through contact mode and 15000 teachers through ICT mode in induction training programme: the flagship programme

- Conduct other Short-Term Training Programme (STTP) also through ICT mode

Induction Training Programme

- aims at developing basic teaching skills among the newly recruited technical teachers

- also aims at developing professionalism in the practicing teachers including right values and desirable attitudes which enable them to perform the roles and responsibilities expected of them by the institutions effectively.

- the programme has been designed and developed in two phases each of 02 weeks durations

Induction Training Programme-Phase-I

Contents

- Role and responsibilities of technical teachers

- Learning and instruction

- Content analysis

- Instructional Objectives

- Classroom Communication

- Overview of Teaching Methods

Induction Training Programme-Phase-I (Continued…..)

- Overview of Instructional media including preparation of simple media

- Student evaluation

- Instructional session planning

- Teaching practice with feedback

Induction Training Programme-Phase-II

The Induction Programme Phase-II is designed and offered only to those teachers who have already attended Phase-I.

Contents

- Design, development, implementation and evaluation of curriculum

- Teaching methods such as case study, role play, project method, industrial visit/training, etc.

Induction Training Programme-Phase-II (Continued…..)

- Student assessment including pen-paper tests and others

- Laboratory assessment

- Use of IT in teaching-learning

- Mini-project

Training Methodology

- Lectures and interactive sessions using A-VIEW

- Web based Learning Management System using the MOODLE Learning Management System(LMS)]was also setup to register the course participants, host course content in lesson format for each session, Tutor and peer interactions, and to administer online tests and quizzes.

Training Infrastructure

- Number of Remote Centres (RC) were set up, where teachers from nearby polytechnics would come to attend

- One mentor/ coordinator would be designated at each RC who would carryout administrative, IT related and some academic responsibilities

- Number of participants varied from 5-45 per RC

Instructional Strategies using AVIEW

- Generate Tutor IDs / setting rights

- Convert of lesson/ session contents in A-VIEW compatible structure and digital formats

- Upload Content in A-VIEW servers, in order/sequence

- Deliver engaging classes live and recorded

- Provide access to lectures at varying bandwidths

- Interact with Multiple teacher and student

Instructional Strategies using AVIEW (Continued…..)

- interaction through video and chat sessions

- Share any kind of course content file and even on desktop

- Share and discuss assignment submitted and providing feedback to trainees online at RC's at different locations

- Interact with trainees through whiteboard and chat sessions

- Use *HANDRAISE* option for trainees to interact with teacher

Instructional Strategies using MOODLE

- Register/Enroll participants on course server using MOODLE LMS.

- Launch Programme as per schedule.

- Interact with trainees through instant messaging tools, engaging in a chat session and clearing their doubts through online discussion forums.

- Provide online feedback to the assignments submitted by the trainees and tracking progress

- Administered and managed of the course as per schedule

Instructional Strategies using MOODLE (Continued…..)

- Design and Prepare course material, pre-test, post-test, lessons, quizzes, assignments, cases etc in compatible digital format.

- Generate Tutor IDs / setting rights as teacher for the tutors, workshop coordinators, and resource persons on MOODLE course server

Resources Required at RC

- Internet bandwidth – 1 Mbps

- Computer with minimum 1 GB RAM

- Camera

- Audio Amplifier with speakers and microphone

- Classroom with LCD projector and screen

- Computer classroom

Infrastructure at NITTTR Bhopal

- A dedicated webcast studio with A-VIEW/ICT hub/workstation to telecast course content with high sped dedicated leased line connection is .

- Creation of content in A-VIEW and Moodle compatible format as per the proposed courses is developed.

- A sever dully configured with Learning Management System for offering blended learning mode has been setup.

Output till March 2013

- First training programme of two week duration on a pilot basis was launched in June 2012.

- Based on the feedback of participants, faculty concerned, coordinators and resource persons, changes were incorporated in the design of the programme.

- Subsequently, 7 more programmes of two week duration training 522 teachers were conducted involving 11nos. of Remote Centres (RC).

Findings- Acceptance

- Almost everyone concerned with the training is thrilled with the new mode of training, where they do not have to go to large distances for conducting or receiving training.

- However, as with any new technology there is reluctance to accept new blended mode of learning as replacement of face-to-face training programmes by the participants of training programmes.

Findings- Two-way Interaction

- There are large number of tools available on A-VIEW platform to facilitate teaching-learning process. Faculty conducting the training programmes have utilized these tools and are appreciative of vast potential of these tools in enhancing teaching-learning effectiveness.

- However, traditional two-way interaction of face-to-face training, especially of rhetorical questions and actual presence of trainer rather than screen presence of trainers is somehow missed and is difficult to replace.

Findings- Large number of participants

- As the number of participants, becomes large, it becomes cumbersome to timely correct assignments and provide feedback. However, this issue can be sorted by assigning more number of faculty programmes to correct assignments and feedback.

- Some teaching methods work especially well with ICT based training, such as lectures and assignments and these are extensively used for conducting training programmes.

Findings- New Pedagogy

- Some of more interactive methods such as role play, case study, and group assignments with presentations, teaching-practice have limited applicability to such training programmes.

- There is almost consensus that new pedagogy needs to be developed to utilize new dimensions of training as provided by ICT. At the same time some replacement of time-tested continuous two way interaction need to be thought of.

Findings- Infrastructural Bottlenecks

- Infrastructural bottle-necks remain impediment in the effective implementation of these programmes.

- Bandwidth remains a major impediment, especially polytechnics located in rural areas. Average broadband speed in India is about 0.9 Mbps which is way below global average.

- Many a time, disruption due to power cut, also poses problem in rural polytechnics. However, one feature of A-VIEW that lectures gets recorded and can be viewed later, is useful in tackling this problem.

Concluding Remarks

- ICT revolution in education and training is here to stay. It is likely to revolutionize the way education and training is provided.

- India faces challenges of training large number of teachers of both engineering colleges and polytechnics.

Concluding Remarks
(Continued...)

- The experiment with blended A-VIEW and MOODLE LMS platform has shown lot of promise to contribute towards training such large number of teachers.

- There are some issues to be sorted out. New pedagogy must be evolved and infrastructural issues to be resolved, which will make training based on ICT mode more effective and practical.