

## TECHNOLOGY ENHANCED LEARNING: A CASE STUDY OF NPTEL

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**Abstract:** Technology Enhanced Learning (TEL) is a major 21<sup>st</sup> century trend in Higher Education. There are several government initiatives in India towards e-learning. National Programme on Technology Enhanced Learning (NPTEL) is one of the major initiatives. The present paper is an assessment of various aspects of this programme. It aims at evaluating the major outcomes of the project.

**Key Words:** Technology Enhanced Learning (TEL), Information Communication Technology (ICT), National Programme on Technology Enhanced Learning (NPTEL), Pedagogy, Outcomes, Learner Autonomy, Academic Flexibility, etc.

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### **Introduction:**

Advancement of Information Communication Technology (ICT) has proved to be boon for many fields. It has also brought paradigm shift in pedagogy. It is evident that ICT has become a major asset for teaching learning. The entire process of learning is revamped in the 21<sup>st</sup> century and ICT is the backbone of it.

No one is left behind in this revolution, not only developed nations but also developing countries like India have also adopted educational technology. There are enough measures adopted by the MHRD to facilitate technology enhanced learning. National Programme on Technology Enhanced Learning (NPTEL) is one of the major initiatives in India. In last few years it has provided e-learning platform to millions of learners. This is a joint venture of IITs and IISc.

### **Model for Technology Enhanced Learning:**

Intervention of technology in the field of education has innovative applications that contribute significantly to the overall quality enhancement exercise in higher education. There are several aspects of it to enable, educate and empower people. Sherly and Meraj have identified following motives of an ideal TEL model:

- i. Learning is about building the capacity to see the abstraction, understanding patterns, to arrive at informed decisions and to appropriate action
- ii. Learners need sense of purpose, motivation, direction in the form of instruction activities
- iii. Instruction should be approached with a tacit process with real world activities
- iv. Reduce the gulf between what is taught in the course and the way it is used in the real world.

**NPTEL:**

NPTEL is an acronym for National Programme on Technology Enhanced Learning which is an initiative by seven Indian Institutes of Technology (IIT Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras and Roorkee) and Indian Institute of Science (IISc) for creating course contents in engineering and science. NPTEL as a project originated from many deliberations between IITs, Indian Institutes of Management (IIMs) and Carnegie Mellon University (CMU) during the years 1999-2003. A proposal was jointly put forward by five IITs (Bombay, Delhi, Kanpur, Kharagpur and Madras) and IISc for creating contents for 100 courses as web based supplements and 100 complete video courses, for forty hours of duration per course. Web supplements were expected to cover materials that could be delivered in approximately forty hours. Five engineering branches (Civil, Computer Science, Electrical, Electronics and Communication and Mechanical) and core science programmes that all engineering students are required to take in their undergraduate engineering programme in India were chosen initially. Contents for the above courses were based on the model curriculum suggested by All India Council for Technical Education (AICTE) and the syllabi of major affiliating Universities in India. Indian higher Education Report 2015 observes NPTEL as “a model for technology enhanced learning”.

**Content:**

Course contents will be useful for teacher training and through them improve the quality of students. In addition, the course materials (both web and video) are freely

accessible by everyone independent of their geographic location. These courses can be used by professionals for updating their academic background. Open and distance education using NPTEL contents are long term prospects for IITs. The contents will hopefully help evolve criteria for focused learning and a common set of standards for professional education in India through participation by everyone concerned under this platform. The Sage Encyclopedia of Online Education records that “NPTEL has partnered with You Tube to upload more than 5,500 video lectures in about 130 disciplinary areas”.

#### **Four Quadrant Learning:**

The courses developed by NPTEL have 4 quadrants –

- i. video lecture,
- ii. specially prepared reading material that can be downloaded/printed
- iii. self-assessment tests through tests and quizzes and
- iv. an online discussion forum for clearing the doubts.

Steps have been taken to enrich the learning experience by using audio-video and multi-media and state of the art pedagogy / technology. Since January 2017 NPTEL is providing Live Streaming of some of the classes for selected courses. NPTEL has developed a sizable repository of online video and text resources. A. K. Ray observes that “NPTEL is by far the largest high-quality OER for UG and PG level engineering education in the world”.

#### **Operational Mechanism of NPTEL:**

There are several mechanisms being practiced by the project coordinating and implementing team at IIT Madras. Some of them include:

- i. Course Specific Workshops by the faculty who developed the course
- ii. NPTEL Awareness Programmes / workshops in selected regions all over the country so that a large body of students can also participate and learn the process of usage.
- iii. Promotion on Webpage / you tube channel etc.
- iv. Creating subject index and keyword search for both video and web materials
- v. Developing course-specific bulletins/discussion boards in the web site
- vi. Setting up Local Chapters and identifying SPOCs for the ease of routine functioning
- vii. Encouraging teachers in various colleges to adapt the materials to prepare localized versions suitable for the examination system of that college.

- viii. Sharing the expertise on e-learning, content development, content dissemination with interested Institutions so that they can set up their own e-learning portals.
- ix. Distribution of NPTEL content-both web and video to any interested institution for its internal use.
- x. Collaboration with industries and potential employers for skill enhancement.

**Evaluation of the Project:**

1. The basic objective of science and engineering education in India is to devise and guide reforms that will transform India into a strong and vibrant knowledge economy. In this context, the focus areas for NPTEL project have been:
  - a) higher education,
  - b) professional education,
  - c) distance education
  - d) continuous and open learning.
2. India needs many more teachers for effective implementation of higher education in professional courses. Therefore, methods for training young and inexperienced teachers to enable them carry out their academic responsibilities effectively are a must. NPTEL contents is being used as core curriculum content for training purposes.
3. Many students who are unable to attend scholarly institutions through NPTEL have been accessing quality content from them.
4. Many of those who are gainfully employed in industries and all other walks of life and who require continuous training and updating their knowledge have been benefited from well-developed and peer-reviewed course contents by the IITs and IISc.
5. Hence, it is to be noted that as on today the history of Technology Enhanced Learning in India shows that NPTEL has achieved success in fulfilling its rationale.

**Works Cited:**

Danver, Steven L. *The SAGE Encyclopedia of Online Education*. New Delhi.: Sage, 2016. Print.

Ray, A K. "Imperatives of Access, Equity, and Quality in India." Huang, Kinshuk, Prince. *ICT in Education in Global Context: Emerging Trends Report 2013-2014*. New York: Springer, 2014. Print.

Sanjay, B P. "Distance Education and Technology Based Education: An ICT Framework." Varghese, N. V. and Garima Malik. *Indian Higher Education Report 2015*. New York: Routledge, 2016. 226-41. Print.

Sherly, Elizabeth and Meraj. "A Technology Enhanced Model for Quality Education." Uddin Lytras, Miltiadis etc. *Technology Enhanced Learning: Quality of Teaching and Educational Reforms*. Berlin: Springer, 2010. 446-451. Print.