

## Technical Education: Role of Information and Technology

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### ABSTRACT

India has one of the largest and greatest pools of scientific and technical man power in the world. Teachers play a pivotal role in the development of the country to impart basic knowledge and skills to the students and mould them in all round way to perform not only in their fields but also as good civilian. Education is a cyclical process; the goal of education is to bring desirable changes in the behavior of the learner in the form of acquisition of knowledge, proficiency in skills and development of attitude. Teaching and learning are internal parts of education. Teaching Learning System associated with many resources like men, material, money and inputs (students) enhances instructional process and output (knowledge) for the society in the shape of intellectual citizens. Effective technical teaching is a complex, intellectually demanding and socially challenging task. Multimedia is an evolution of technology as well as a convergence which brings together IT related hardware and software. Converging technologies includes computer, TV, printing and telecom. Teachers do not become redundant but their role becomes more challenging and demanding as they are expected to use the media to enrich their lessons.

today in the form of man power. India proudly proclaims that intellectual power from India is being used all over the world in all the countries and with that whole word is prospering.

Education is a cyclical process; the goal of education is to bring desirable changes in the behavior of the learner in the form of acquisition of knowledge, proficiency in skills and development of attitude. Teaching and learning are integral parts of education. Teaching is not a mechanical job; it is an exciting and challenging profession. It is a art of guiding learners through a variety of selected experiences for attaining teaching – learning art goals. In this process, it proceeds from known <-> unknown, easy <-> difficult, analysis <-> synthesis and empirical <-> rational which can be called as principles of teaching. Teaching can be defined as “Any interpersonal influence aimed at changing the ways in which other person behaves”.<sup>2</sup> Learning is knowledge gained through education. “Learning is a process that results in modification of behavior”.<sup>3</sup> i.e., Entry Behavior + learning = modified Behavior.

### I. INTRODUCTION

“Indian Human recourses base will change the future of India down the years and the process has just began. The concepts of education are changing with development of technology and India needs to make use of the advanced telecommunications infrastructure for revolutionizing the countries higher education. Technology is a great instrument of change”.<sup>1</sup>

India has one of the largest and greatest pools of scientific and technical man power in the world. Teachers play a pivotal role in the development of the country to impart basic knowledge and skills to the students and mould them in all round way to perform not only in their fields but also as good civilian. There is a requirement to produce more number of technical and non-technical students to cater the needs of global village, which has been possible because of the massification of the education that has been taking place since last few years. India has abundance of knowledge and intellect, the most we export

Sam Pitroda – Chairman NKC.<sup>1</sup>

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J. F. Travers<sup>3</sup>

Learning is a goal oriented if there is no purpose or goal in learning may be less or futile. In this aspect the basic teaching learning models are as follows:

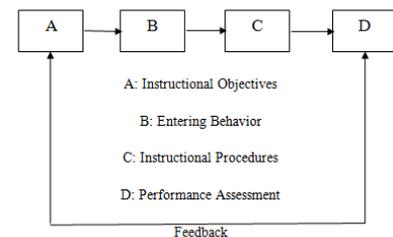


Fig (1) Teaching Model



Fig (2) Learning Model

- A: Participation of Students
- B: Motivated Teacher
- C: Practice by the Student
- D: Imparting Real life Situation
- E: Transformation between Student and Teacher

To sum up the above concept Teaching-Learning System associated with many resources like men, material, money and inputs (students) enhances instructional process and output (knowledge) for the society in the shape of intellectual citizens. Due to individual differences among learners, the same learning experiences may yield different levels of growth in them which can be seen in 3 domains. [Cognitive, affective and conative].

## II. METHODS OF TEACHING

1. **Formal Lecture:** Most widely using method of teaching is formal lecture; where teacher can inspire/ dramatize/ Compare/ criticize the selected content or element and ignore others show where to lay stress. It can be more effective, strengthened and refined by using teaching aids like chalk-board, charts, A. V. equipment and others.
2. **Tutorial:** Reading, thinking and writing/ solving are the elements in this style. It is subject oriented at informal atmosphere. Teacher at as a coordinator, catalyst or facilitator with student centered. It intervenes only to the extent necessary to point out in knowledge, in adequacies in thinking, irrelevance in argument, contradictions in statement deficiencies in the arrangement of matter, content, subject, mistakes in expression.
3. **Questioning:** Basing on above methods, it is planned before advance in brief. It is widely distributed to grow out of lecture or tutorial. It should not used for humiliation and better to avoid yes/no/over questing. It is very great full if treat wrong answers sympathetically. Questions must be explorative, preparatory or introductory, and these should develop the subject or content matter. This can be considered informal way of teaching as it not treated one of the methods of teaching.

To support the above methods, the teacher must coin on how to lecture? How to questioning? and need to prepare lesson plan basing on educational objective. Lesson preparation involves teaching points, teaching and student activity, specification of material, learning experiences of students and change in behavior of the students. To conclude, at the end, the performance assessment also important for the teacher; Assignments, mid-exams and end exams are the traditional forms of assessment normally basing on regulatory bodies like UGC, AICTE, NCTE etc.,

## III. TECHNICAL EDUCATION: ROLE OF A TEACHER

“What you say is not important, how you say is important”.<sup>4</sup>

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H. Miurns<sup>4</sup>

Effective technical teaching is a complex, intellectually demanding and socially challenging task. It consists a set of skills that can be acquired improved and extended. To teach effectively, teacher need to be able to think about problem solving, analyzing the topic and required to choose an appropriate approach with key material and strategies. This can be take place in the context of a department (say EEE, ECE, CSE...) and institution (say college) level as which may have unexamined traditions and conflicting goals & values at various levels. Teachers role is technical education is very wide can't be occur in a vacuum.

### *Role of a teacher:*

1. Organize; structure the ideas, information and tasks to students.
2. Prepare lecture material with figures, charts, curves and illustrations.
3. Collect all standard and relevant books with the help of library resources
4. Give definition, explain concept, elaborate the operation, solve the applications, derive the equations, solve numerical problems, and draw conclusion on every topic in every class.
5. Review what has been taught in the last class and give the plan for present and future class and try to complete syllabus within the time frame.
6. Use net, acquire updated knowledge.
7. Motive (self and others) for research activity after initiate institute – Industry collaborations.
8. Visit relevant industries to enrich knowledge and conduct personality development program (PDP's) to know the attitude and behavior of the student.
9. Conduct symposiums, seminars, workshops for the students to bring out management skills (time management, risk management, stress management) and inherent talent to improve their confidence levels. Remember that job opportunities will come on the basis of individual capabilities not on institutional basis.
10. Encourage students to start an industry to become as entrepreneur.
11. Concentrate on teaching – learning process, try to make diction in teaching and assess & evaluate the students to suit for corporate field.

#### IV. ROLE OF INFORMATION AND TECHNOLOGY (IT)

“I never try to teach my students anything. I only try to create an environment where they can learn”.<sup>5</sup>

Multimedia is an evolution of technology as well as a convergence which brings together IT related hardware and software. Converging technologies includes computer, TV, printing and telecom. IT provides opportunities for adopting flexible teaching – learning technologies. The impact of IT has significantly changed the speed of production, use and distribution of knowledge. It is leading towards the evolution of a hybrid teaching environment where lectures and lab facilities of traditional are combined with on-line lectures and on-line accessible lab facilities. On-line learning system should offer education/ training using inter-net to deliver multimedia rich learning courses to students for a fees (payment). E-learning<sup>6</sup> has evolved over the years from CD-Rom based learning to making learning much more engaging and immersive as opposed to the passive learning experience of lecture based classroom. E-learning can occur in or out of the classroom. It can be self-placed asynchronous learning or may be instructor-led, synchronous learning. E-learning is suited to distance learning and flexible learning, but it can also be used in conjunction with face-to-face teaching, in which case the term blended learning is commonly used. It is commonly thought that new technologies make a big difference in education. Many proponents of e-learning believe that everyone must be equipped with basic knowledge of technology, as well as use it as a vehicle for reaching educational goals.

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Albert Einstein<sup>5</sup>

“Combination of Learning services and technology to provide high value integrated learning at any place, at any time”.<sup>6</sup>

NPTEL provides e-learning through online Web and Video courses in Engineering, Science and Humanities streams. The mission of NPTEL is to enhance the quality of engineering education in the country by providing free online courseware. The objective of e-learning is digital or non-digital which can be used, re-used or referenced during technology support learning. This involves the following features.

1. Communicate with learners through email
2. Monitor students discussion groups in online conference rooms.
3. Grade papers and projects
4. Grade tests/ exams.

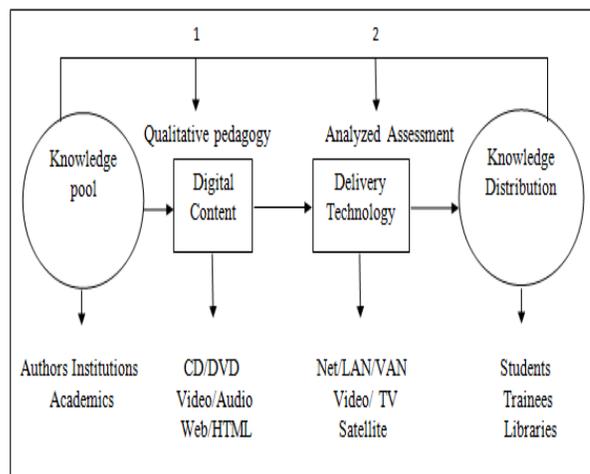


Fig (3) Pod casting: Just like radio broadcasting but through internet

Podcasting is both a converged medium bringing together audio, the web and portable media player, and a disruptive technology that has caused some in the radio business to reconsider some of the established practices and preconceptions about audiences, consumption, production and distribution. The idea of disruptiveness is largely because no one person owns the technology; it is free to listen and create content, which departs from the traditional model of gate-kept media and production tools. It is very much a horizontal media form; producers and engage in conversations with each other. Teachers do not become redundant but their role becomes more challenging and demanding as they are expected to use the media to enrich their lessons. Cognitive sciences prove that, TV alone can engage and sustain the interest of learners if the content is interactive, relevant and practical. India has gyan – darshan, eakalavya, mana TV, EDUSAT, NPTEL, youtube as 24-hour educational TV channels.

#### V. CONCLUSION

A variety of teaching strategies are available which can be used by teachers in their classrooms. Planning, interactive and evaluation are there important phases in teaching. Teachers should remember that the primary task of teaching is to involve students in their own-learning. Students’ achievement depends on the degree of their involvement in class-room activities and students also are able to determine which facts, concepts, rules and principles are the most important ones. Work done with happiness enhances it’s creatively and productively and hence “keeps learning stays one young; stop learning makes one old. Education by which character is formed, strength of mind increased, the intellect is expanded.

A mediocre teacher – Tells  
A good teacher – Explains  
A perfect teacher – Demonstrates  
A gifted teacher – Inspires  
A modern teacher – Facilitates

- William Wards

## **REFERENCES**

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