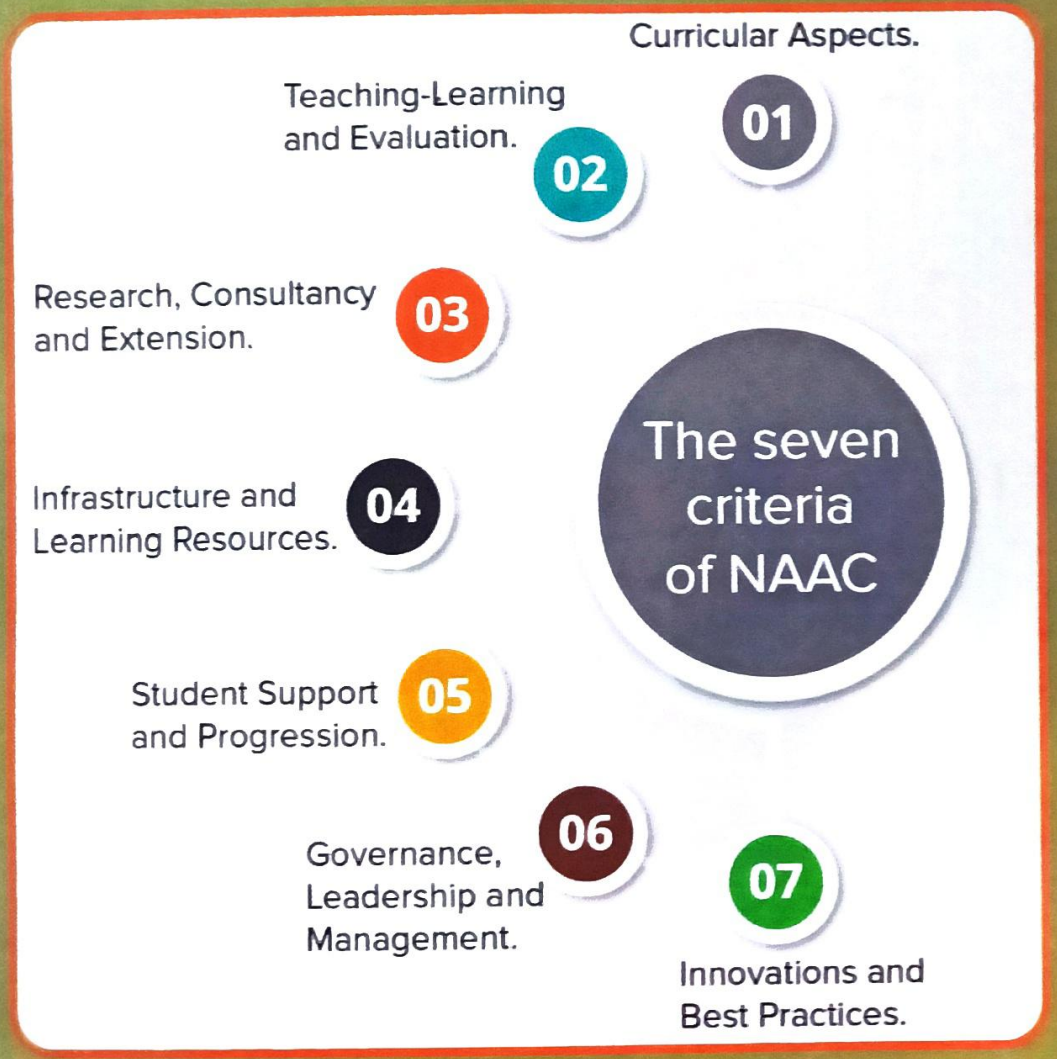
EMERGING TRENDS IN QUALITY OF TEACHING LEARNING AND EVALUATION: THE ROAD AHEAD



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15. Role of Information Technologies Learning Process in Teaching

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Abstract

Today the changes brought about by new technology had a significant effect on the life of people living in every corner of the globe. Traditional process of teaching and learning in education has been replaced by new and emerging technologies. Information Technology is having a major impact on all areas of education- curriculum, methods of teaching, classroom learning etc. Rapid communication with increased access of Information Technology (IT) in home, work place and educational institutions has make education a life-long process. Information technology helps teachers and students in gaining up-to-date information and knowledge. Accurate and right information is necessary for effective teaching and learning; and information technologies (Haag, 1998; p.10) are "set of tools that can help provide the right people with the right information at the right time."

Information technologies have affected every aspect of human activity and have a potential role to play in the field of education and training, specially, in distance education to transform it into an innovative form of experience. The need of new technologies in teaching learning process grows stronger and faster. The information age becomes an era of knowledge providing sound and unmatched feasibility for discovery, exchange of information, communication and exploration to strengthen the teaching learning process.

Students are independent and they can make best decisions possible about their studies, learning time, place and resources. Students are able to work in collaborative and interactive

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learning environments effectively communicating, sharing information and exchanging ideas and learning experiences with all in the environment. This paper highlights the role of information technologies in teaching learning process.
Key Words- *Information Technology, Teaching- Learning process, Computer, Internet, & Knowledge.*

Introduction

One of the basic functions of education is preparation of students for life. This function in 21st century may be participation in an information rich society, where knowledge is regarded as the main source for socio-cultural and politico-economical development of countries and/or nations. Information rich societies are developed and dominating and they are controlling the information throughout the world. Information encompasses and relies on the use of different channels of communication, presently called information and communication technologies (Hussain, 2005) and would be incorporating better pedagogical methods to cope with such emerging situations.

These have changed the scenario of education particularly, pedagogy and instruction making teaching learning process more productive creating collaborative, learner centered and interactive global learning environments. Therefore, information technologies are assumed to play a constructive role in education to make the teaching and learning process more productive through collaboration in an information rich society.

Information rich society promotes new practices and paradigms for education where the teacher has to play new role of mentoring, coaching and helping students in their studies rather to play the conventional role of spoon feeding in the classrooms.

Students can learn independently having a wide choice of programme selection and access to information. Students can be involved in skill oriented activities in group learning environments for accumulated knowledge. They can interact and share learning experiences with their teachers and fellow learners in knowledge construction and dissemination process. They can receive and use information of all kinds in more constructive and productive profession rather depending upon the teacher.

Branson (1991) stated that students learn not only by the teacher but they also learn along with the teacher and by interacting with one another. Indeed, now students can learn much more than that the teacher teaches in conventional learning environments. For productive teaching learning process teachers and students have to use information technologies according to their requirements and availability.

Relationship between Technology in Education and Pedagogy

Research has illustrated that many educators have had a hard time integrating technology into education. This may be because many educators have yet to explore the relationship between technology and pedagogy. Doing so could play a huge part in encouraging critical thinking by teachers as they attempt to integrate technology into education.

At the same time, for technology to work effectively, it should only be incorporated in classroom if it is appropriate for a given instructional task. Also, technology can only be an effective teaching tool if teachers participate in decisions to adopt technology. This is because teachers have the responsibility of facilitating instruction and incorporating technology at the classroom level, yet many school administrators tend to make decisions related to technology adoption/training without consulting teachers.

Information Technologies

At present, knowledge may be regarded as power and it comes from having information. Information encompasses and relies upon the use of different communication channels or technologies – called information technologies, for its effectiveness and equal access. Information technologies may extend knowledge beyond the geographical boundaries of a state or country providing relevant information to the relevant people round the clock.

Information Technology "is any computer-based tool that people use to work with information and support the information and information processing needs of an organization" (Haag. 1998; pp.17. 518). It includes computers and its related technologies; WWW, Internet and Videoconferencing etc. Information technology can be used to promote the opportunities of knowledge dissemination. It can

help the teachers and students having up-to-date information and knowledge. Accurate and right information is necessary for effective teaching and learning; and information technology (Haag, 1998; p.10) is a "set of tools that can help provide the right people with the right information at the right time."

Information Technologies and Teaching Learning Process: Making Students Independent in their Studies

Using information technologies students can decide about their studies, learning time, place and resources in a better way. Students can work in more supportive environments, seek help from teachers and fellows, and share their learning experiences and ideas in romantic and productive fashion.

The innovative kinds of pedagogy empowered by these emerging media and experiences promoted the opportunities of distance education and at present virtual education and eliminated the barriers of distance and time. New and innovative learning experiences would be enhanced and encouraged by these technologies, as by virtual communities, which exist by interactions across the globe through global network of computers round the clock. The global sharing of experiences would make possible the group presentation form of instruction in distance education.

Rashid (2001, p.270) stated that

- Both teachers and learners can work with others at remote sites.
- The community of learners can expand to include virtually anyone who wishes to obtain information and who is not excluded by policy or cost.
- They can provide real access to experts in universities, research laboratories, the business community, government agencies and political offices.
- Information technologies can promote the opportunities of restructuring the teaching learning process.
- These can transform teaching and learning by offering alternatives to the teacher provided information, access to virtually unlimited resources and opportunities for real world communication, collaboration and competition.

The phases of this process as described by Marriam et al (1997, p.34) are,

- " developing awareness – recognizing that something is wrong or different;
- exploring alternative–researching for new ideas from other institutions and acknowledging that change is needed;
- making a transition–leaving the old approaches behind (or dramatically changed);
- achieving integration-putting the pieces from the transition phase back together; and
- taking action-putting new ideas into operation".

Educative environments definitely enhance and shape the teaching learning process to achieve the desired goals. There is a natural tendency for students to learn and learning can accelerate, in interactive and encouraging environments. Accelerating the encouraging environments may be psychological climates and students' interactions can create them. Interactions of students can make learning environment more effective and meaningful and 'much of learning takes place in a meaningful environment'. The on-line setting provides a level of flexibility and convenience not provided by traditional classroom courses".

Internet and WWW provide learners latest relevant information at their own pace and they can form a virtual community of learners at global level. Teaching organizations are adopting information and communication technologies specially the computers, World Wide Web, teleconferencing and educational television because of their cost effectiveness, access and flexibilities of choices.

Importance of Information Technologies for Students

- To participate in a media revolution.
- To improve the ways of learning in new learning fashions
- Improve the ability and skills of applying their learning in real situation.
- Working in groups for cooperative and collaborative learning
- Developing self-learning habits at their own pace and time.
- To learn with the teacher rather by the teacher.
- To develop inquiry-learning habits.

- Use right information at right time to achieve right objective.
- Review and explore qualitative data.

Information technologies facilitate students in their learning process through their active participation on one hand and help teachers on the other hand.

Importance of Information Technologies for Teachers

- To present the material in more interesting and attractive way.
- To guide and help students in searching the qualitative material.
- To make best and efficient use of time.
- Coach and Direct the students.
- Provide individualized instruction.
- Direct the students toward cooperative as well as collaborative learning activities.
- It is more important and useful in preparing learning material for students.
- Diagnose the learning problem of students and help them to overcome.
- Solve the study problems of students.

Information technologies affect the teaching learning process in different ways. These helps the teachers in preparing lecture notes for interesting presentation, on the one hand and facilitates the students on the other hand. Different technologies help the teachers and students according to their respective nature and capabilities of storage and presentation.

For example computers are used in education for various purposes as they can store and retrieve a huge amount of information. All 20 volumes of the Oxford English Dictionary are contained on one compact disc. The disc provides instant access to 616,500 words and terms, 137,000 pronunciations, 2.4 million illustrative quotations, 577,000 cross references, and 249,000 etymologies.

Information technologies provide the opportunities of global interactions. Students can learn from interactions with the information, interface, teachers and co-learners using global networks. They can interact at their own and get rid of their routine work. They may review and explore the qualitative as well as quantitative data

trough computer networks. They can work on group projects participating in peer learning and knowledge building activities. Under the influence of information technologies, teaching and learning occurs in a changed situation. There seems a shift from teacher centered teaching to student centered learning.

Menges (1994) – Eight Shifts

Reflect the effects of information technologies on teaching and learning process.

- **A shift from lecture and recitation to coaching:** Students learn by interactive technologies and teacher facilitates them on how to use and reflect responses. He/she may be diagnosing learning problems and helping learners to find their solutions. When students work with information technologies, teachers reduce the time they spend directing students; they spend more of their time facilitating student learning.
- **A shift from whole-class instruction to small group instruction:** Students progress at different rates and pace in their learning process. Teachers can interact with individual students and in small groups. They can become better informed of the individual student's progress and problems in their learning. So they can help and facilitate students individually in more effective way.
- A shift from working with better students to working with weaker students: Individual differences exist among students at all levels of learning. Information technologies enable teacher to cope with this problem in large classes working with individual students and in small groups. The teacher is then able to aim instruction at one specific target group and to devote time to those who mostly need help.
- A shift from all students learning the same things to different students learning different things: Conventionally, all students had to learn the same things what the teacher intended to teach them in a class. However, now the situation has changed and the use of information technologies has enabled the students to learn what they need, and what they want to learn.There also exists individuality in some common

attainments. Resources for learning are available through information technologies, it becomes possible for students to recognize and use the appropriate information to achieve the goals under the tutelage of teacher.

- A shift towards more engaged students: Conventionally, majority of students is passive listener in the classrooms for most of the time. Teachers carry on delivering lectures without any concern of students' participation in the teaching learning process. Use of Information technologies in classroom situation particularly interactive technologies however; ensure attention and active involvement of students. Well-designed computer-mediated instruction is more likely to engage individuals for effective learning than simple lectures and book reading a classroom.
- A shift from assessment based on test performance to assessment based on products and progress: Competencies and skills are necessaries to live a successful and productive life. These may result from undertaking creative projects rather than repeating or paraphrasing information from lectures and textbooks. The best projects include realistic tasks that generalize the student's learning and its application in new situations. Information technologies actively involve the students in different competency based activities through skill oriented projects in real situations.
- A shift from competitive to a cooperative goal structure: Collaborative and cooperative learning approach provides learners the opportunities of extensive interaction. Students have access to extensive databases and share their own work through networked communications to work on collaborative projects. Teachers guide the students on how to share and interact in networked collaborative learning environments.
- A shift from the primacy of verbal thinking to the integration of visual and verbal thinking: Using information technologies students would have extensive experience with video than with print, yet instruction is based primarily on print. However, visual literacy is poorly understood and poorly utilized in perceiving instruction. Teachers need to consider what capacities for visual knowledge and skills students

should possess, and determine how they can ensure progress towards developing these capacities. Information technology can help the teacher on the one hand and facilitates the learners on the other hand. Both, teachers and students get rid of their routine work, and have to play their new roles in new situations respectively. Teachers spend much of their time in assisting the students rather lecturing; and students access the information of their need.

New Situations – New Demands

In the age of information technology, effective and efficient learning is potentially possible at all levels for all round the clock. Content-centered presentation by teachers to large groups of students cannot have any justification to be dominant method of instruction. In the era of information technology teachers will be spending more time in facilitating students rather delivering lectures in the classrooms. They would be working in groups; preparing and evaluating instructional materials and organizing data into meaningful information and accessible forms. They will be spending their time in coaching students; helping them to learn through reviewing the huge information.

They will be offering group presentations. Presentations will not be used to provide new information instead, presentation will be carefully constructed to model and answer existing questions and solve current problems in certain disciplines. They will also be demonstrating the potential of skill development in students by using information in problematic situations.

Menges (1994. pp 188-190) - Changed Role of Teachers -

The following shifts reflect the new role of teachers in new situations.

- **A Shift from Covering Material to Assisting Students in Sampling Material:** Teachers decide what is essential and what is optional for students when the information is too much to decide by students. The essential information can be assigned and students guided to work in an effective way. The content should span a variety of media to ensure that students become adept in using information sources and that they experience the effects of diverse media.

- **A Shift From Unilaterally Declaring What Is Worth Knowing O Negotiating Criteria:** That Identify What Is Important: Instead of providing net packages of content, the teacher plunges into primary sources with students. Together they develop ways to discriminate the more important from the less important. Courses' exercises can help to develop criteria about the importance of information and its use for specific purposes. Students can discuss these criteria for understanding and developing the new one if needed. A discipline-specific criterion validates the information and enables students to develop expertise in formulating criteria in other disciplines. They must also medium specific as the characteristics of print and electronic information significantly differ from each other.
- **A Shift from Ranking Students Relative to One Another to Negotiating Standards Specific to Individuals:** Information technologies promote diverse academic opportunities and paths for each student. Students show progress according to their capabilities and some students may progress slowly than others. The teacher cannot use uniform standards of achievement and uniform rate of learning to evaluate students' work. Therefore, it would be necessary to negotiate learning objectives and rates of progress that reflect individual interests, abilities, skills and needs.
- **A Shift from Grading According To Individual Attainments To Grading According To Collaborative Contributions:** Evaluation of individual work is easy. But judging and rewarding individuals' work in group performance is difficult because roles and responsibilities of each group member vary. Information technologies permit almost variability in the tasks that group members pursue.
- **A Shift from Merely Verifying Student Source to Deriving Standards for Fair Use and Credit:** Plagiarism is a curse in academic affairs. For a teacher it is too difficult to verify all the sources to ensure the originality of students' work. This role of plagiarism detector seems impractical when sources are so numerous and information can be so easily altered. But

the computer software has made it possible to detect the plagiarism.

- **A Shift from Requiring Students To Produce Knowledge To Rewarding Them for Demonstrating Originality:** A student should have the skills and capabilities of understanding and applying knowledge in real situations. Without the application of knowledge students can no longer retain it and soon they forget. In the era of information technologies students should be able to apply core concepts and generalize principles to significantly different situations. Exposure to information technologies leads to this affective principle. Information technologies would develop in students, the ability of judging the validity and precision of information. Learning by information technologies, students would analyze and explore the information to achieve certain objectives of their study.

Need for the Preparation of Information Technology

Certain skills capabilities of using different information technologies are necessary for students as well as teachers. Therefore, gradual encounters with the technologies are necessary to prepare themselves for the age of information technology. They will anticipate in the age of information technology as:

- Requiring students to use electronic databases in their searches.
- Encouraging students to use electronic mail to ask questions, and for submitting assignments.
- Becoming familiar with the advantages and disadvantages of the technologies and exploring the capabilities of compact-disc read-only memory (CD-ROM), tele/videoconferencing etc.
- Surveying students about their familiarity with the information technologies and asking if they will share their knowledge and skills with the class.
- Using computer programs for keeping records in large class-enrollment lists, test items and so on and having students review and update their own record from time to time.

- Encouraging students to include visual elements as part of their projects.
- Spending students' time as a multimedia workstation, planning a presentation; assembling projection graphics, video clips, animation, sound and other materials; trying to match particular materials with specific learning objectives; and integrating the materials into a unified presentation.

Active Learning Opportunities

Active learning is a process in which the students are engaged in hands-on activities rather than passively receiving knowledge. Students interact with others to construct meaning from new ideas and concepts based on their background knowledge. Active learning is fastpaced, fun and personally engaging because students have the opportunity to try things out, use their senses, ask questions and discuss with others. Assignments are designed to draw upon the skills and knowledge that students have or must acquire. Cooperative learning, problem solving, and project- based learning are active learning strategies.

Need to Utilize Active Learning in the Classroom.

- Draws upon the pre-existing knowledge that students already have.
- Is essential for idea manipulation.
- Enhances understanding through cooperative learning and
- Augments learning through technology tools.

Suggestions

Effective Implementation of Active Learning Strategies will definitely help students to:

- Engage in higher-order thinking tasks as analysis, synthesis and evaluation;
- Study ideas, solve problems and apply what they have learned;
- Construct hypotheses and make decisions;
- Provide meaning and organization to experiences;
- Work collaboratively with others;

- Connect real-life work between college and what will take place in future
- Address cultural influences and individual learning styles.

Conclusion

The ultimate success of ICTs for learning will be attained when we stop marveling about the ICTs and apply our minds and emotions to the wonders of learning."

Information technologies are the result of knowledge explosion. These include hardware & software technologies and facilitate teaching learning process. Using Information Technologies learners are now able to participate in learning communities throughout the world. They are independent and free in choice of their programmes of study and access to the resources. They may learn collaboratively, share information, exchange their learning experiences and work through cooperative activities in virtual learning communities. Information technologies facilitate teaching learning process in more productive fashion. Similarly, the role of teacher is also different in new settings than in the conventional system. Teacher facilitates and guides the learners in their study playing the role of a coach or mentor. Now teacher is not at the center of the instruction and sole source of information as in conventional classrooms. He/she decides contents/experiences and/or activities, locates the resources and guides learners how to have access and utilize the information for required outcomes. In nutshell, information technologies are restructuring teaching learning process to meet the International standards.

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