



EFFECTIVE INTEGRATION OF ICT AND INNOVATIVE TECHNIQUES TOWARDS TOTAL QUALITY ASSURANCE IN SCHOOL EDUCATION

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Abstract

Quality assurance in school education is now a global concern. In the age of globalization and technological change, education is not confined to be transmitted from the teacher to student over a fixed period of time. Rather educational system must promote the learning environment by acquisition of knowledge and skills that make possible continuous learning through modern methodology, innovative techniques and integration of ICT. Information and Communication Technology (ICT) is the most cost effective approach to provide high quality education and training to the people in an insufficient economic condition, which covers hard wares, soft ware, networks, media for collection data, storage, processing, transmission and critical thinking abilities. NPE 1986 and 1992, and NCF,2005 have stressed on employing ICT to improve the quality of education. Also National Policy on ICT, 2009 formulated the policies and implementation strategy for the same. This paper outlines effective integration of modern methodology and innovative techniques through the use of ICT in classroom. The traditional "chalk and talk" method of teaching that persisted for hundreds of years is now acquiring inferior results when compared with the more modern and revolutionary teaching methods that are available for use in schools today. Greater student interaction is encouraged, the boundaries of authority are being broken down, and a focus on enjoyment over grades is emphasized. The researchers believe that the core objective of teaching is passing on the information or knowledge to the minds of the students. Any method using computers or modifying the existing conventional chalk-talk method are innovative if they ultimately serve the attainment of core objective of teaching. Nowadays, technology is rapidly changing, and the use of new and global technologies (i.e., mobile devices) is spreading. As such, smart phones, portable gaming systems, iPods, and tablets are available to expand Internet accessibility and technology integration in the classroom (Cheung, 2009).



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Introduction

Globalization and the shift to a 'knowledge-based economy' require that educational institution develop in individuals the ability to transformation into knowledge and to apply that knowledge in dynamic, cross-cultural contexts. ICTs are means for meeting these challenges. For instance, in India, during 2004-05, while the Gross Enrolment Ratio for children enrolling in classes I to VIII was 97 percent, the Drop-out Rate for the same classes was as high as 46 percent. The situation is more worrying at the

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secondary education level (classes IX and X), where the enrollment is recorded at 53 percent and the Drop-out Rate is as high as 60 percent. Efforts so far have addressed to a considerable degree, the concerns of equity as well as that of regional parity, however concerns of quality have not received adequate attention. Recognizing this, the Government of India's flagship education programme at the primary level - the Sarva Shiksha Abhiyan (SSA) - has streamlined its focus on 'quality'.

While there is no conclusive research to prove that student achievement is higher when using ICTs in the education space, either in the developed or developing countries, there is a general consensus among practitioners and academics that integration of ICTs in education has a positive impact on the learning environment. It is understood that in diverse socio-economic and cultural contexts ICTs can be successfully employed to reach out to a greater number of students, including those to whom education was previously not easily accessible, and help in promoting learning, along with exposing students to the technical skills required for many occupations.

What is Innovative Teaching?

Innovative teaching is necessary for the present and future of education to help students to reach their full potential. Higher education should serve the long term intellectual needs of the student, for example, whether providing new material by teachers helped the student to gain new insights or opened up new channels of intellectual stimulation or enhanced student's essential and creative thinking power?. Innovative teaching is a necessity for all teachers in order to meet the educational needs of the new generations. However, teachers' competency for innovative teaching is a key factor influencing innovative teaching performance. Some research points out that many teachers lack competencies for innovative teaching!

The Traditional Classroom

1. Identify concepts and topics to be covered in the class, subdivide those into Units or Modules, and state a collection of learning objectives that will be assessed
2. During class meeting time introduce information on the main concepts and topic to the students, usually through lecture.
3. Students work independently outside of class on activities intended to deepen their understanding of the content and master the learning objectives

Traditional Teaching Method

An evaluation in the pre-technology education context, the teacher is the sender or the source, the educational material is the information or message, and the student is the receiver of the

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information. In terms of the delivery medium, the educator can deliver the message via the “chalk-and- talk” method and overhead projector (OHP) transparencies. This directed instruction model has its foundations embedded in the behavioral learning perspective and it is a popular technique, which has been used for decades as an educational strategy in all institutions of learning. Basically, the teacher controls the instructional process, the content is delivered to the entire class and the teacher tends to emphasize factual knowledge. In other words, the teacher delivers the lecture content and the students listen to the lecture. Thus, the learning mode tends to be passive and the learners play little part in their learning process. It has been found in most universities by many teachers and students that the conventional lecture approach in classroom is of limited effectiveness in both teaching and learning. In such a lecture students assume a purely passive role and their concentration fades off after 15-20 minutes. Some limitations which may prevail in traditional teaching method are

1. Teaching in classroom using chalk and talk is “one way flow” of information.
2. Teachers often continuously talk for an hour without knowing students response and feedback.
3. The material presented is only based on lecturer notes and textbooks.
4. Teaching and learning are concentrated on “plug and play” method rather than practical aspects.
5. The handwriting of the lecturer decides the fate of the subject.
6. There is insufficient interaction with students in classroom.
7. More emphasis has been given on theory without any practical and real life time situations.
8. Learning from memorization but not understanding.
9. Marks rather than result oriented.

Modern Methodology

The traditional or innovative methods of teaching are critically examined, and some modifications in the delivery of knowledge is suggested. As such, the strengths and weaknesses of each teaching methodology are identified and probable modifications that can be included in traditional methods are suggested.

Types of Methods

Brainstorming

1. Brainstorming is a group creativity technique by which efforts are made to find a conclusion for a specific problem by gathering a list of ideas spontaneously contributed

by its members.

2. Brainstorming with a group of people is a powerful technique.
3. Brainstorming creates new ideas, solves problems, motivates and develops teams.
4. Brainstorming motivates because it involves members of a team in
5. bigger management issues, and it gets a team working together.

Problem-based learning

Problem-based learning (PBL) is a student-centered pedagogy in which students learn about a subject through the experience of solving an open-ended problem. Students learn both thinking strategies and domain. Problem based learning will provide you with opportunities to examine and try out what you know discover what you need to learn develop your people skills for achieving higher performance in teams improve your communications skills state and defend positions with evidence and sound argument become more flexible in processing information and meeting obligations practice skills that you will need after your education.

Collaborative learning

Collaborative learning is an educational approach to teaching and learning that involves groups of learners working together to solve a problem, complete a task, or create a product.

Benefits:

1. Develops higher level thinking skills.
2. Promotes student-faculty interaction and familiarity Increases student retention.
3. Builds self esteem in students Enhances student satisfaction with the learning experience.
4. Promotes a positive attitude toward the subject matter.
5. Develops oral communication skills, social interaction skills.
6. Promotes positive race relations.
7. Creates an environment of active, involved, exploratory learning.

Four Collaborative Learning Strategies

1. Think-Pair-Share

It is collaborative, active learning strategy, in which students work on problem posed by instructor,

1. first individually (Think), then in pairs (Pair) or groups, and
2. finally together with the entire class (Share).

What is Think, Pair, Share? ...

T (Think): Teacher asks a specific question about the topic. Students "think" about what they know or have learned, and come up with their known individual answer to the question. [Takes 1-3 Minutes].

P (Pair): Teacher asks another question, related to the previous one, that is suitable to deepen the students' understanding of the topic. Each student is paired with another student. They share their thinking with each other and proceed with the task. [Takes 5-10 Minutes].

S (Share): Students share their thinking (or solution) with the entire class. Teacher moderates the discussion and highlights important points. [Takes 10-20 minutes].

2. THREE-STEP INTERVIEW

1. Place members into teams of four.
2. Assign each a number of letter.
3. Give an interview questions.
4. Step 1: A interview B; C interview D
5. Step 2: B interview A; D interview C
6. Step 3: Each member of the team, in turn, shares with the group the information they learned from the person they interviewed.

3. SIMPLE JIGSAW

1. Defined broadly, Jigsaw is a grouping strategy in which the members of the class are organized into "jigsaw" groups.
2. The students are then reorganized into "expert" groups containing one member from each jigsaw group.
3. The members of the expert group work together to learn the material or solve the problem, then return to their "jigsaw" groups to share their learning.
4. In this way, the work of the expert groups is quickly disseminated throughout the class, with each person taking responsibility for sharing a piece of the puzzle.

4. NUMBERED HEADS TO GETHER

1. Numbered Heads Together is a cooperative learning strategy that holds each student accountable for learning the material.
2. Students are placed in groups and each person is given number (from one to the maximum number in each group).
3. The teacher poses a question and students "put their heads together" to figure out the answer.
4. The teacher calls a specific number to respond as spokes person for the group.

5. By having students work together in a group, this strategy ensures that each member knows the answer to problems or questions asked by the teacher.
6. Because no one knows which number will be called, all team members must be prepared.

ICT use as part of teaching methods

The main purpose of the information and communication technology implementation in education is to provide the prospects and trends of integrating information and communication technology (ICT) into the general educational activities.

This approach integrates ICT into teacher training to facilitate some aspects of training. Two cases below show how a variety of ICT are adopted as part of effective training methods. In these cases, teachers are provided with examples of ICT-pedagogy integration in their training process.

ICT has been developing very rapidly nowadays. Therefore, in order to balance it, the whole educational system should be reformed and ICT should be integrated into educational activities. The influence of ICT, especially internet (open source tool) cannot be ignored in our student's lives. So, the learning activities should be reoriented and reformulated, from the manual source centered to the open source ones. In this case the widely use of internet access has been an unavoidable policy that should be anticipated by schools authorities.

The use of ICTs can improve access to and promote equity in education by providing educational opportunities to a greater number of people of all ages, including the traditionally undeserved (e.g. those in rural and remote areas, women and girls, and persons with disabilities). ICTs can enhance the quality of teaching and learning by providing access to a great variety of educational resources and by enabling participatory pedagogies. ICTs can improve the management of education through more efficient administrative processes, including human resource management, monitoring and evaluation, and resource sharing.

Types of ICTs used in Education

e-learning

Although most commonly associated with higher education and corporate training, e-learning encompasses learning at all levels, both formal and non-formal, that uses an information network- the internet, an intranet (LAN) or extranet (WAN)-whether wholly or in part, for course delivery, interaction and/or facilitation. Others prefer the term

online. Web-based learning is a subset of e-learning and refers to learning using an internet browser.

1. The delivery of a learning, training or education program by electronic means.
2. E-learning involves the use of a computer or electronic device (e.g. a mobile phone) in some way to provide training, educational or learning material.
3. E-learning can involve a greater variety of equipment than online training or education, for as the name implies, "online" involves using the Internet or an Intranet. CD-ROM and DVD can be used to provide learning materials.

Blended learning

Another term that is gaining momentum is blended learning. This refers to learning models that combine traditional classroom practice with e-learning solutions. For example, students in traditional class can be assigned both print-based and online materials, have online mentoring sessions with their teacher through chat, and are subscribed to a class email list or a web-based training course can be enhanced by periodic face-to-face instruction. "Blending" promoted by the recognition that not all learning is based achieved in an electronically-mediated environment, particularly one that dispenses with a live instructor altogether. Instead, consideration must be given to the subject matter; the learning objectives and outcomes, the characteristics of learners, and the learning context in order to arrive at the optimum mix of instructional and delivery methods.

1. Blended learning is a term increasingly used to describe the way e-learning is being combined with traditional classroom methods and independent study to create a new, hybrid teaching methodology.
2. It represents a much greater change in basic technique than simply adding computers to classrooms.
3. It has already produced an offshoot – the **flipped classroom** – that has quickly become a distinct approach of its own.

Flipped Classroom

1. Identify concepts and topics to be covered in the class, subdivide those into Units or Modules, and state a collection of learning objectives that will be assessed
2. Students work independently outside of class in structured activities where they **encounter and learn the basic concepts and information** of that lesson.
3. **During class meeting** time students assess their basic knowledge and work cooperatively or collaboratively to **deepen their understanding** of the content and

master the learning objectives.

Teleconferencing

Teleconferencing refers to "interactive electronic communication among people located at two or more different places." There are four types of teleconferencing based on the nature and extent of interactivity and the sophistication of the technology: 1) audio conferencing; 2) audio-graphic conferencing; 3) videoconferencing; and 4) Web-based conferencing.

Teleconferencing is used in both formal and non-formal learning contexts to facilitate teacher- learner and learner-learner discussions, as well as to access experts and other resource persons remotely. In open and distance learning, teleconferencing is a useful tool for providing direct instruction and learner support, minimizing learner isolation

Class blogs and wikis

Blogs allow students to maintain a running dialogue, such as a journal, thoughts, ideas, and assignments that also provide for student comment and reflection. Wikis are more group focused to allow multiple members of the group to edit a single document and create a truly collaborative edited finished products.

Wireless classroom microphones

Noisy classrooms are a daily occurrence, and with the help of microphones, students are able to hear their teachers more clearly. Children learn better when they hear the teacher clearly. The benefit for teachers is that they no longer lose their voices at the end of the day.

Mobile devices

The term M-learning, or "mobile learning", has different meanings for different people. Cell or smart phones, multi-game devices, personal media players (PMPs), personal digital assistants (PDAs), or wireless single-assessments and evaluations (e.g. Quizzes; tests; surveys/polls; and certifications), provide on-the-job support and access to information, education and references.

Interactive Whiteboards

An interactive white board that provides touch control of computer applications. These enhance the experience in the classroom by showing anything that can be on a computer screen. This not only aids in visual learning, but it is interactive so the students can draw, write or manipulate images on the interactive white board.

Online media and Digital Games

There are websites which can be utilized to enhance a classroom lesson. For example: www.merritnation.com is generally used by the students to assess their own learning. The field of educational games and serious games has been growing significantly over the last few years. The digital games are being provided as tools for the classroom and have a lot of positive feedback including higher motivation for students.

Podcasts

Pod casting is a relatively new invention that allows anybody to publish files to the Internet where individuals can subscribe and receive new files from people by a subscription. The primary benefit of podcasting for educators is quite simple. This can be a great tool for learning and developing literacy inside and outside the classroom. Pod casting can help sharpen students' vocabulary, writing, editing, public speaking, and presentation skills.

EDUSAT or GSAT-3

EDUSAT or GSAT-3 was launched on 2004-09-20 by the Indian Space Research Organization. EDUSAT is the first Indian satellite built exclusively to serve the educational sector. It is mainly intended to meet the demand for an interactive satellite-based distance education system for the country. The IGNOU- Doordarshan telecast programmes, Gyan-Darshan Educational Channel designed mainly for Distance learners.

Video Conferencing

Video Conferencing is an excellent media for sharing and effective usage of not only the e-learning packages, but also to share expertise of specialists in their respective fields. Video Conferencing provides students and teachers with the opportunities to expand their teaching and learning possibilities. Students and teachers will no longer have to rely exclusively on the resources available within their institutions. There are many other tools being utilized depending on the local school board and funds available. These may include: digital cameras, video cameras, document cameras, or LCD projectors.

Virtual Classroom

A virtual classroom is an online learning environment. The environment can be web-based and accessed through a [portal](#) or software-based and require a downloadable [executable](#) file.

Conclusion:

ICT has the potential to "bridge the knowledge gap **In** term of improving

quality of education by increasing the quality of educational opportunities and by making knowledge building possible through borderless and boundless accessibility to educational resources and people and reaching population in remote areas to satisfy their basic right to education. The use of ICT in education not only improves classroom teaching learning process, but also provides the facility of e-learning with an ocean of multi-sensory resources. The use of ICT as Innovative and effective tool will enable the teachers as well as students to enhance their learning experiences and also helps them to think independently and communicate effectively in and outside the classroom teaching learning process .It is indispensable that teachers or trainers should be made to adopt new technology by using the modern methodology and innovative technology by a careful and sensitive blending of both which can open an endless opportunity of building a true knowledge society and make teaching learning more effective than ever in the 21st century.

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