RESEARCH ARTICLE

INNOVATIVE INFORMATION AND COMMUNICATION TECHNOLOGIES FOR EDUCATION & LEARNING IN 21ST CENTURY.

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Manuscript Info	*Abstract*
……………………. 	……………………………………………………………… At present technology effecting every aspect of our lives. They are playing important role in workplace, business, education and entertainment. At present education system in India is experiencing a great change in respect of equity, quality and access. This transformation is extremely effected by the rapid developments in technology all over the world. By using ICT teachers and students boosting their learning and enhance skills mandatory for future. The introduction of ICT in teaching learning has great importance for the entire education system mainly in dealing with key issues of access, management, equity, efficiency, pedagogy and quality. This research paper attempts to find the transformation we will notice in education as technology acts as a important factor to reform many of the academic practices to which we have become familiar.

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Introduction:-

Human society has witnessed many revolutions from ancient to medieval, medieval to modern world there is a revolution. This is the era of 'Technology' revolution. Technology is playing an key role in every aspect of life. Education is not far from this change. It will become an integral part of schools and eventually transform the entire process of schooling, Papert (1986). In the last five decades higher education systems have grown tremendiously to fullfill the needs of qualitative education for all. Desire for trained workers is highly rising in the global community. Employing technology in education contibutes to more student-centered learning environment.

Global society is progessing quickly into digital media and information. Technology playing an important role in education. Education around the world have been using the technology (ICT) to develop and distributed teaching and learning. ICT motivate the students and improves collaborative learning, provide greater understanding, develop high order skills and better interaction through network.

 "ICTs are the computing and communication facilities and features that variously support teaching, learning and a range of activities in education. As in business, ICT has contributed greatly to networking among schools and universities and among individuals in schools and universities. However, this is where the similarity with business begins to fade. Schools and school districts hardly use ICT to manage the quality of output, or to raise teacher productivity, or to reduce costs through analyzing spending."

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Technology in Education:-

In education techonology used for preparing course content, distributing content and sharing content. It makes communication possible between students, guides, teachers and the outside world. Technology is helpful for teachers for creation and delivery of lectures or student enrolments. Different types of technology products accessible and applicable to education like podcasting, blogs, mobile learning, wikis, teleconferencing, email, audio conferencing, television, radio broadcasts, voice response system have been used for different purposes in education system (Bhattacharya and Sharma, 2007).

Radio and TV broadcasting:-

Since the 1920s and the 1950s radio and television used broadly as educational tools.
1. Experts on various fields of education can reach a large number of people. It reduces   the dependency on teacher.
2. It has reached in the nook and corner of the society in villages and cities. They are not expensive.
3. Doordarshan, All India Radio and NCERT telecast educational programmes for teachers and students.

Tele-conferencing:-

Tele-conferencing is useful for both formal and non-formal teaching learning environment. It mkes easy access to experts and other resource persons from different geographical locations. Tele-conferencing is a powerful tool for imparting direct directions and assistance in distance and open learning. It is two way meeting in virtual space between two or more sections in different locale by means of computer, audio and video system. It is useful for bridge the distance gap between teachers and students. It become interactive tool for education system for active learning.

Audio-conferencing:-

it is using for the real-time exchange of voice messages across telephone system. It is useful in distance teaching and very effective for teaching and learning where learners cannot meet face to face with instructors. It is easy accessible and cost effective mediun for educational settings.

Video-conferencing:-

It is not only exchange of voice. We can also excange moving images and multimedia images. Telephone lines do not used in Video-conferencing but satellite link or television networks used. No thing can replace the richness of face-to-face classroom but video-conferencing removes distance barriers, invites collaboration, and increases mobility for both the student and the teacher. Over video-conferencing teacher discuss live events to his/her students. Video-conferencing help to organise guest lectures from great academic lecturers.

Virtual Classroom:-

virtual classrooms duplicate the attributes of a real classroom online. Students interact with each other and instructor electronically. It gives the chance for students to take direct directions from a teachers. Learners can access their teachers for immediate feedback and direction. Virtual classroom offers a social learning environment. Almost all virtual classroom applications offers a recording feature. Every lesson is recorded and placed on a server. Which help the students to revise concepts for an upcoming exam.

Computers in Education:-

Computer is now regarded as a super teaching machine. It help the teacher for evaluation of students performance**.** Teachers directing the learners using Word documents, PowerPoint slides or Web pages for better content clarity. With help of computer direct interaction between students and subject matter is possible. Computer can facilitate self-paced learning.

Podcasting:-

Podcasting means posting audio and video material on the web. It helps for the creation and distribution of lectures over internet. Students access podcast episodes directly on their computers, smart-phones, tablets. Podcasting help students for review lectures if they miss the classes. They accept that recorded lessons has a positive effect on their performances. Many students also scan the lectures or sections and listening it multiple times. It is helpful in distributing additional educational ideas and content.

WeBlogs:-
WebBlogs help the students to gain a better understanding of a subject matter. It can make link study groups within a class or outside classe or even other schools. Blogs can create a effective learning environment. Blogs provides various opportunities for students to read and write. It is very useful for collaboration and discussion during class or after class. It is just like a portal which is used to inform students, upload notes or home assignments. It is helpful for organize students digital portfolios. With the help of weblogs students can practice and take advantage of peers acting as audience to proving their views about what they have written. Students can read and comment on each others posting. Weblogs are used as educational tools to not only teach students but also as means of keeping parents informed of what is going on in the classroom as well as in school.

Mobile-Learning:-
Use of mobile phones as a learning tool is a modern technique of learning. Mobile devices comprises of Palmtop Pc, PDA and Smart Phones used for teaching-learning process. M-Learning is a unique concept that makes learning effective, portable, spontaneous and exciting. It is a best learning tool for 21st century classroom. Students can record the lectures, read e-books, access internet and practice exercises for enhance learning process. Teachers also provide feedback to students. Mobile phones are not just a plaything but beyound it.

The impact of ICT on Education:-
➤ **Strengthing Teaching and Learning process:-** Traditional methods of teaching lay stress on mastery over content material. Over many years courses have been written around textbooks. Traditionally teachers taught the students by lecture method and develop route learning habit among students. Modern situations are now favouring course of study that nurture skills and boost performance. Todays education system focus on the Student-centered learning based on information access and inquiry. Now learning environments are problem centered and inquiry based. Now teachers play the role of mentors instead of content pundits.
➤ **Improving the Accessibility of Education:-** Students can access information anytime and from anywhere. Technology enhances the flexibility of delivery of education. Technology support 24x7 teaching and learning. The most important contribution of technology in education field is easy access to education. Now learners can use e-books, previous year papers and sample examination papers. Students easily communicate with teachers, guides and classmates all over the world.
➤ **Boosting Learner Motivation:-** Technology brought a positive change in teaching learning process. Now teachers use educational videos, television, computer, colorful animated images to engage the learners in the teaching-learning process. Computer-based instructions can give immediate feedback to learners and explain correct answers. It motivate the learners for life long learning.
➤ **Refining Teacher Training:-** With the help of technology teachers refine their teaching skills. Technology is useful to improving the quality of teacher-training. It is used in teacher education for developing capacities among teachers such as selection of digital content and critical analysis of digital content, plan for valuable use of digital content, familiar with the latest techniques or methods of teaching and developing research competencies. In 1996 at Indira Gandhi National Open University satellite-based one-way video and two-way audio-conferencing was held. The teachers interacted with remote lecturers by telephone and fax.
➤ **Upgrade Distance Learning:** Technology with its, innovative practices can educate the learners who cannot attend clssroom setup for their education. Technology innovations provide new and innovative means to bring educational opportunities to greater numbers of people of all ages, especially those who have historically been excluded, such as populations in rural areas, women facing social barriers, and students with disabilities.
➤ **Improving Educational Administration and Management:-** Technology may bring the efficiency in management and administration. Library automation, office automation, maintenance of records, resource planning, e-governance, school based management information system (MIS) to increases the efficiencies. Technology can help improve the quality of administrative activities and processes, including human resource management, student registration, and monitoring of student enrollment and achievement.
➤ **Collaborative Learning:-** It is one of the innovative innovation of technology which inspires interaction and co-operation among students, teachers, and experts no matter when and where they are. It gives freedom to work with students from different cultures. It help the students develop the skills necessary to work on projects.
➤ **Individual Learning:-** Students acquire knowledge as individuals and not as a homogenous group. Each student can proceed at his own pace. The student can learn effectively if he learns at his own pace. ICTs allow each student to learn its content through his or her medium. Introducing technology into the learning environment increased learner engagement. It helps in creating learner centered atmosphere for the effective attainment of educational goals.

Conclusion:-

Today, the face of education is constantly changing. It is important for educators to accept this change. Now students of all ages need to learn with technology. Over the years system of education become more complex. In this complex educational environment use of interesting, interactive and innovative modes of instruction for making teaching and laerning more enjoyable and easy. The inclusion and utilization of technology in teaching and learning have a positive impact on students, teachers and administration. Technology enhances the flexibility of delivery of education and provide wider access to education. Students can access information anytime and from anywhere despite of time and place obstacles. It can effect the process learners are taught and how they learn. Techonology base teaching and learning is absolutely the way towards which the whole globe is moving.

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