REVOLUTIONIZING EDUCATION: A VISION FOR TRANSFORMATION

Webinar proceedings on "Use of Modern Technology in Teaching & Learning"

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GOVT. P. G. COLLEGE, KHARGONE (M.P.)

REVOLUTIONIZING EDUCATION: A VISION FOR TRANSFORMATION

Editors

Miss.Aishwarya Dilaware
Asst. Professor, Physics
Dept. of Physics

Dr. Dinesh Choudhary
Asst. Professor, Physics
Dept. of Physics

Mr. Santosh Rathod
Asst. Professor, Physics
Dept. of Physics

Mrs. Amika Birle
Asst. Professor, Physics
Dept. of Physics

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ON

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PREFACE

As technology advances at an unprecedented pace, it has become increasingly important for educators to incorporate modern tools and techniques into their teaching practices and to explore the various ways technology can enhance the learning experience for teachers and students alike. From online learning platforms to interactive digital resources, we delve into the latest innovations and their potential impact on the classroom. Technology integration in education is a fundamental shift in knowledge and skill acquisition.

This book delves into the dynamic relationship between education and technology, exploring innovative ways to use modern tools and digital resources to enhance the teaching and learning experience. As we embark on this journey, it is vital to acknowledge the profound impact technology has already had on education and the exciting possibilities. This book is an essential guide for anyone looking to harness the power of technology to optimize their teaching and learning strategies.

This book is intended for educators, students, policymakers, and other stakeholders interested in the evolving educational landscape. It is designed to inspire, inform, and spark meaningful discussions about the role of technology in education, as it is a compilation of insights and perspectives from experts and educators.

The journey ahead has both intriguing potential and challenges. This book will be a helpful resource, inspiring creative thinking and promoting a deeper comprehension of how modern technologies may be exploited to realize the full potential of teaching and learning. It will proceed in accordance with the objectives of the National Education Policy 2020.

We are grateful for your joining us on this voyage into the vision of transforming the world through the integration of technology and education. Together, we may navigate a constantly evolving landscape and contribute to a future in which education has no boundaries. We are delighted to publish this book as institutional publishers. This book is dedicated to inclusive development of society.

Editors
Miss.Aishwarya Dilaware
Dr.Dinesh Choudhary
Mr. Santosh Rathod
Mrs. Amika Birle

ABOUT COLLEGE

Our institute is affiliated with Devi Ahilya Vishwavidhyalaya, Indore (M.P.) and NAAC accredited, began its journey with faculties of Science, Arts, and Commerce on a dynamic path of progress in 1958. The college has a vast campus sprawling over 11 acres, with a constructed area of 3625.93 square meters. It caters to the needs of higher, advanced academic knowledge with programs in Science, Arts, and Commerce. The campus is a confluence of teachers with various skills and experiences in diverse fields, offering students. The Jananayak Tantaya Mama Khel Prashal indoor Stadium is equipped with modern facilities.

Our institute is a transformative experience for many individuals, offering the opportunity to gain knowledge, expand horizons, and prepare for future career paths. It also provides skills for personal growth and self-discovery. The specific experience can vary significantly from one college to another, institute aligns with needs of students and their academic and personal goals.

Our objective is to strive for quality education in keeping with the motto of the college, "Excellence in Education," and prepare young minds for imbibing knowledge, skills, and sensitivity. To provide affordable quality education while equipping students with knowledge and skills in their chosen stream, inculcate values, identify hidden talents, provide opportunities for students to realize their full potential, and thus shape them into future leaders, entrepreneurs, and above all, good human beings.

CONTENTS

जनभागीदारी अध्यक्ष की कलम से.....

प्रौद्योगिकी का उपयोग शिक्षा के स्तर को बढ़ाता है, एवं इसे आसान बनाता है । आज इंटरनेट की आसान पहुंच ने शिक्षा को काफी सरल बना दिया है। शिक्षण मे तकनीकी के प्रयोग से गुणवत्तापूर्ण शिक्षा समाज के हर वर्ग तक कम लागत पर उपलब्ध हो रही है, उच्च स्तर के शोधकर्ता एवं वैज्ञानिकों के रिसर्च पेपर/आर्टिकल तक पहुंच बनी है, जिससे समाज के हर वर्ग के विद्यार्थी लाभान्वित हो सकते हैं। शिक्षा में प्रौद्योगिकी का उपयोग हमारी शिक्षा प्रणाली में व्यापक बदलाव लाएगा। एक तरफ यह छात्रों को अध्ययन के लिए प्रोत्साहित करेगा, जबकि दूसरी तरफ उन्हें कई तरीकों से उनके अध्ययन में मदद करेगा। प्रौद्योगिकी हमें नई चीजें सिखाती है और हमें नए विचारों को विकसित करने और हमारी रचनात्मकता को बढ़ावा देने के लिए प्रोत्साहित भी करती है।

अत्यंत प्रसन्नता का विषय है कि वर्तमान परिप्रेक्ष्य मे अध्ययन-अध्यापन मे आधुनिक तकनीकी के प्रयोग के शोध पत्र एवं आर्टिकल का संकलन **"Revolutionizing Education: A Vision for Transformation"** मे प्रकाशित किया जा रहा है।

शुभकामनाओं के साथ

श्री दीपक कानूनगो

जनभागीदारी अध्यक्ष

शासकीय स्नातकोत्तर महाविद्यालय, खरगोन

FROM
PRINCIPAL'S DESK

At our times, teaching and learning was confined to chalk-board in four walls of classroom. But today I see so many digital tools, interactive platforms and online resources has expanded the boundaries of teaching and learning and have also explored the new dimensions of education. Earlier we use to struggle with availability of resources, but now the information of whole world is at our fingertips.

The impact of technology is equally transportive in teaching. As ICT tools like virtual classrooms, artificial intelligence can bring lesson to life. Technology enables educators to foster a more inclusive and engaging learning environment.

However, I believe that technology is tool, not a replacement for human connection. As we integrate technology into education, we must keep a balance between virtual and real world. According to me the most challenging task is inculcating in student, the correct approach and appropriate ways to use Internet so that they should just not end up with increased screen time and becoming captive to technology. I would say Technology can definitely act as catalyst in creating a future where education has no boundaries, and if used constructively can really be helpful in bridging gaps, imparting skills to learners and shaping young minds who can contribute meaning – fully to society.

It is my immense pleasure to welcome educators, research scholars, and students from across the country. I would like to congratulate entire organizing team for organising such a wonderful webinar, and also extend my heartfelt felicitations to editorial team for publication of souvenir of webinar organised in our institute.

Best wishes,
Prof. (Dr) R. S. Dewra
Principal

IQAC COORDINATOR

Incorporating modern technology in teaching allows for more interactive and engaging learning experiences. Gone are the days of passive lectures and static textbooks. We now have access to interactive multimedia, simulations, and virtual labs that bring complex concepts to life. By stimulating curiosity and encouraging active participation, we foster a deeper understanding of the subject matter.

In the ever-evolving landscape of education, technology has emerged as a driving force, reshaping the way we impart knowledge and how our students receive it. Our commitment to academic excellence compels us to embrace these advancements and harness their potential to elevate the quality of education we provide.

The integration of modern technology in teaching and learning is not just a choice; it is a necessity in our pursuit of academic excellence. As the IQAC coordinator, I assure you that we are dedicated to ensuring that these advancements are implemented thoughtfully and ethically, with the primary goal of enhancing the quality of education we offer.

Let us embrace technology as a powerful tool that enables us to prepare our students not just for exams but for the ever-evolving challenges of the real world. Together, as a community, we can leverage technology to elevate the academic excellence that our institution is known for.

Regards,

Prof. (Dr.) Vandana Barve
IQAC Coordinator

CONVENOR

The integration of modern technology in teaching and learning is a subject close to our hearts as educators, administrators, and learners. It has the potential to revolutionize the way we acquire knowledge, engage with content, and prepare ourselves for the challenges of a rapidly evolving world.

Technology additionally empowers teachers. It gives educators access to a vast array of materials for professional development, analytics, and teaching aids. Enabling our faculty members to successfully monitor student progress, respond to shifting pedagogical trends, and continuously improve their teaching techniques

In this journey where we share our knowledge and experiences, let us keep in mind that our goal is not only to understand the impact of technology on education but also to harness its potential for the benefit of all learners. Let us challenge conventional practices and embrace innovation as we work towards enhancing the quality and accessibility of education.

As the convenor for the webinar "Use of Modern Technology in Teaching and Learning", I am delighted to extend my gratitude to all to our resource persons and all the participants of this webinar. It is a privilege to have such a diverse and knowledgeable group gathered here to explore a topic of great importance to the future of education. I am also grateful to entire organizing, technical and editorial team.

Regards,

Mr. L. K. Bhataniya
Asst. Professor, Physics

RESOURCE PERSON

Use of Modern Technologies in Teaching and Learning

Dr. Namrata Sengar

Department of Pure and Applied Physics

University of Kota, Kota, Rajasthan, India

Abstract

In recent years the world as a whole experienced the consequences of Covid-19 on many fronts and one such major impact was seen in the Education sector. In Covid scenario when it was impossible to continue with the traditional classroom teaching, the use of modern technologies made the teaching and learning possible. This experience made evident the significance of the use of modern technologies in teaching and learning to improve access, understanding and development of skills. Now, it is realised that the traditional methods of teaching and learning supported by the use of modern devices and technologies can enhance the quality and quantity of knowledge exchange, augment conceptual grasp and promote interaction. Technologies are changing the world; therefore, it becomes important that the students are made familiar with the changes to cope up with the transition and be competent to make a place for themselves in the changing situation. Integration of traditional teaching methods with the modern tools followed in a balanced approach can bring about positive transition towards better learning, absorption and skill development. A brief overview of some modern tools with links to the tools in reference section is presented in this article.

Keywords: Education, technologies, modern tools, skill development, teaching and learning.

1. Introduction

The field of education is one of the oldest fields and will continue to exist with the human civilizations, though it gets modified with the developments in different era. The word "*Education"* is derived from the Latin word *"Educatum"*, which means "*To bring out"*. Thus, "*Education*" may be defined as a process to bring out the better qualities of the individual [1]. The

word *"Technology"* is derived from the two Greek words namely *Technic and Logia*, where *"Technic"* means the art or skill and the word *"Logia"* means the science or study, therefore the simplest meaning of "*Technology*" is the science or study of an art or skill [1]. In recent years, world is observing fast developments in the field of modern technologies in form of advanced computers, internet, augmented reality, virtual reality etc. which are moulding and impacting the daily life and careers. With these developments, the field of education does not remain untouched, the use of modern technologies in penetrating the education sector as well. The use of the modern technologies especially the digital applications can help students in developing digital competence and skills for the future.

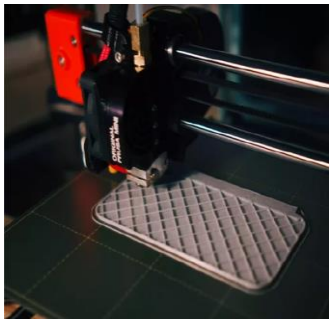
A brief overview of some of the modern technologies being used in the field of teaching and learning is presented below.

2. Modern devices and applications in teaching/learning

Some of the devices and applications which are making their place in the classrooms are [2]

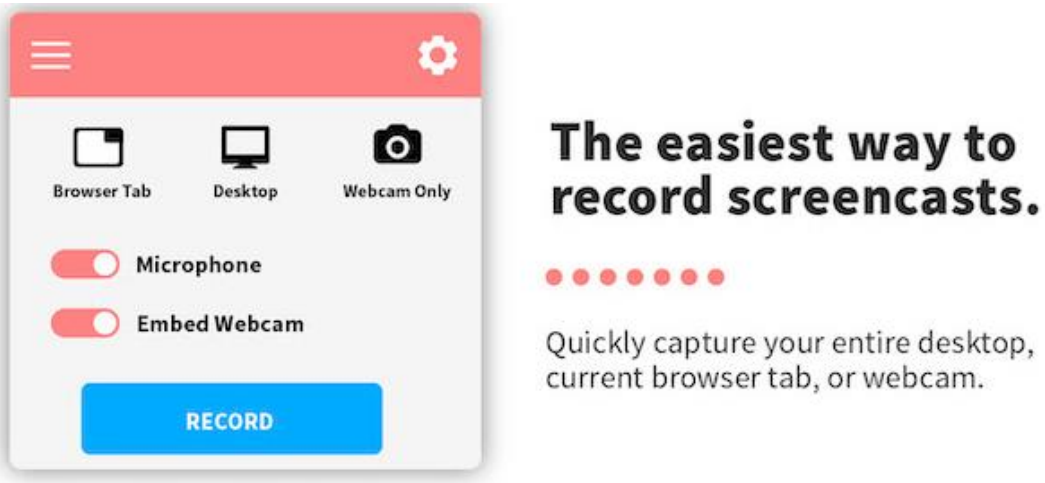
- Digital pads
- Tablets
- Smartboards
- 3 D Printing
- Game Learning
- Augmented reality
- Robotics and Coding
- Virtual laboratories
- E-books
- Remote/Online learning
- Online tools



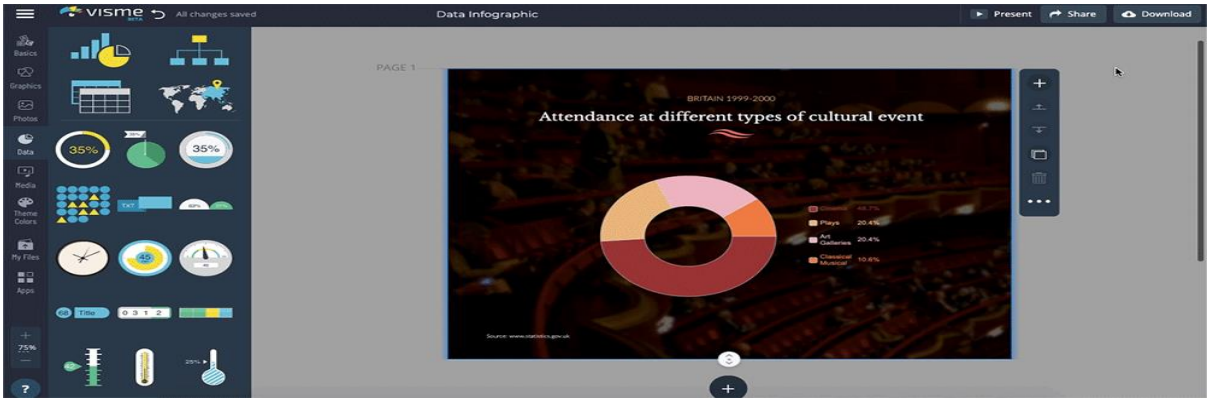


One such web tool is Google Classroom which was a great support during Covid times. ***Google Classroom*** is a product, developed by Google, freely available, especially for educational institutions for managing a virtual classroom. It is a structured tool that assists the teachers in managing their coursework and establishing communication with the students. Using the classroom, the teachers can easily share their course material with the students. Released publicly in 2014, the web service can be accessed on both desktops and through mobile apps, available for iOS and Android devices. It is easy to create a classroom account through gmail account. Students can be invited to join the class through a private code. A separate folder is created in each user's Google drive where the user can store his/her documents [3].

Open source tools available for free for teaching video preparations are Open Broadcaster Software (OBS) and screencastify (free till 5 minute video). Open shot is free and open source video editor. Screencastify is Chrome's simplest free screen recorder and video-creation platform, allowing recording, editing, sharing, and assessing videos in seconds. Screencastify offers a free forever version, which has a limit of up to 5 minutes for video recording [4].

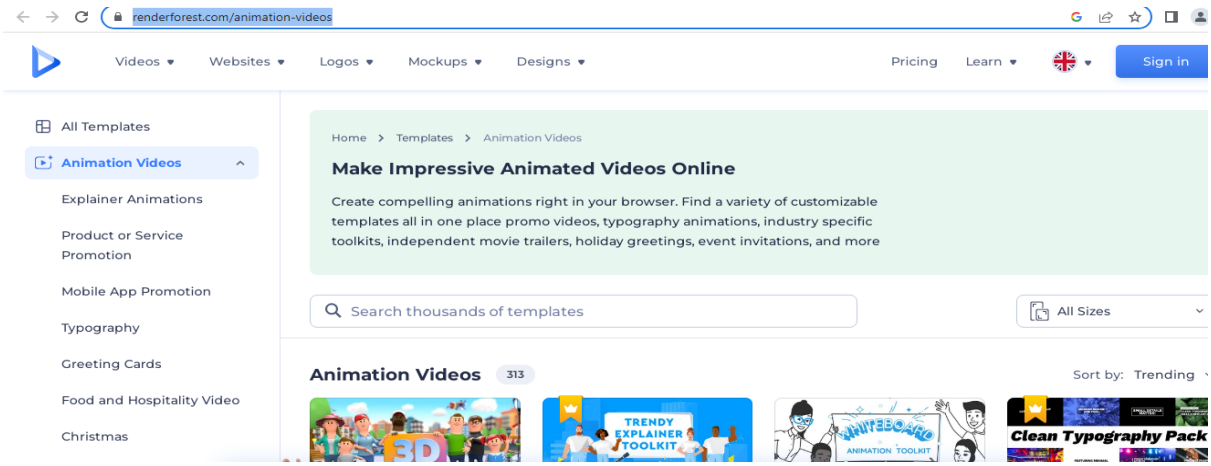


Another interesting tools are animated charts which allow to visualize and tell a story with data. For example, with a bar graph, one can increase or decrease each bar. A pie chart can have its split sections animated. In fact, animation can be used to liven up and reinforce practically any sort of chart [5, 6].



MindMap is a powerful technique to present knowledge corresponding to a subject, topic or idea. It replicates the thinking process of the mind and gives a structural representation to a concept. There is a central theme out of which associations are created. There are several tools available to create MindMaps, one such tool is MindMeister.

Animation video is a method where visuals are designed, layouts are added, and photographic sequences are used to imply activity. The definition of animated meaning is best described as the imitation of movement produced by displaying a series of images. Animated videos make teaching and learning interesting and enjoyable [7-10].



Apart from the above mentioned tools available, there are online international platforms for teaching and learning, some of the common platforms are

- EDX –Accredited Courses
- Coursera
- Udemy
- Duolingo, Memrise and Anki for Language learning

- FutureLearn- University Programs

Further there are Open Educational Resources (OER) in public domain for free use and distribution. Open Educational Resources (OER) are learning, teaching and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open license, that permit no-cost access, re-use, re-purpose, adaptation and redistribution by others.

Indian government has taken special initiatives to provide free online learning resources, some are

- **SWAYAM Prabha TV:** This initiative includes 32 channels that focus on educational programs with the objective of 'One Class, One Channel'. For asynchronous usage by anyone, anytime and anywhere, the curriculum and topics are organized similarly on DIKSHA.
- **Swayam:** The objective of SWAYAM is to provide a learning platform to all, including the most disadvantaged. It hosts almost all the courses taught in classrooms from Class 9 till post-graduation. More information on SWAYAM can be obtained on the official website, swayam.gov.in.
- **PM E-Vidhya:** It is a comprehensive program announced on 17 May 2020, with the objective to unify digital and online education with the education programs for better reach and access to E-learning.
- **DIKSHA:** Digital Infrastructure for Knowledge Sharing was initiated in 2017 with the dream of 'One Nation, One Digital Platform.' DIKSHA is a national platform for grades 1 to 12 and can be operated through a web portal or mobile app. It includes e-content respective to the curriculum with the assignments and courses for educators as well.
- **e-PG Pathshala:** It is an initiative taken by the MHRD under its National Mission on Education through ICT, which is being executed by the UGC. The platform, epgp.inflibnet.ac.in provides interactive e-content in 70 subjects across all disciplines of social sciences, arts, fine arts and humanities, natural & mathematical sciences.
- **NPTEL:** The National Programme on Technology Enhanced Learning was initiated by IIT Bombay, IIT Delhi, IIT Kanpur, IIT Kharagpur, IIT Madras, IIT Guwahati, IIT Roorkee along with Indian Institute of Science, Bangalore in 2003. NPTEL platform, nptel.ac.in provides open online courses around engineering and core science subjects.

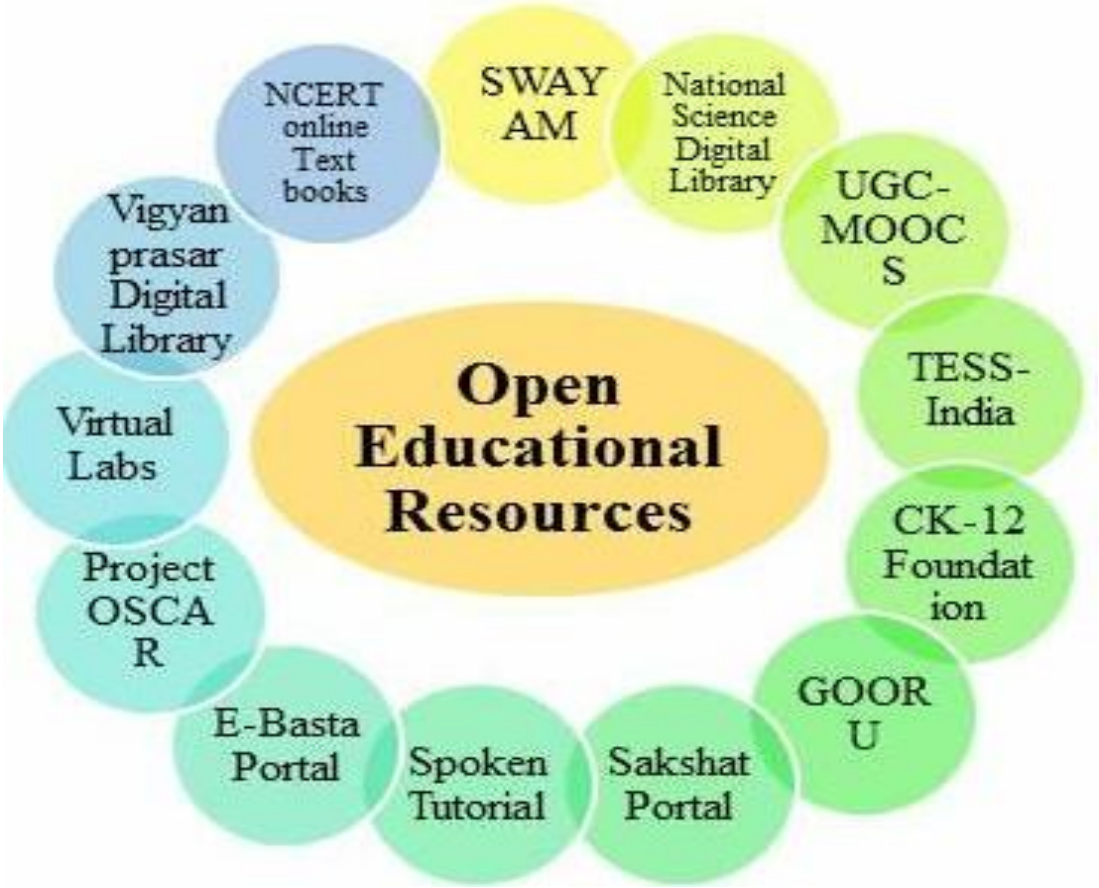


Figure Source [11]

3. Conclusions

The integration of modern technologies with education can help students relate several learning concepts to the applications and lead to skill development and research orientation for society useful innovations. Knowledge of modern technologies can be easily integrated into the teaching and learning through various devices, tools and applications. The use of modern technologies with education will keep the students update and abreast with the new developments and open new pathways of opportunities for them through skill development in this digital era.

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RESOURCE PERSON

MODERN TECHNOLOGIES IN TEACHING AND LEARNING PROCESSES

Dr. S. Rathinavel
Assistant Professor
Department of Electronics and Instrumentation
Bharathiar University
rathinavel@buc.edu.in

INTRODUCTION

In ancient times, the education system was Gurukula education, where they spread sand and drew letters, patterns and pictures on it, students were required to do all the help and work for the teachers. Nowadays, advanced equipment and technologies are used in education teaching and learning. Without ICT, the quality of learning and teaching in today's world would not be easy and teaching would be more difficult. Technologies are outdated day by day and rapid changes in teaching and learning processes too. Meanwhile, teachers need adequate training to handle the learning process, especially those who have reached middle age, They are having a lot of trouble, but once they are taught the high-tech education and learning method, they can easily carry out the teaching work. Since the early 2000s, the learning model has undergone a dramatic change. Students who study similar courses with similar outputs and some level of research differentiate themselves with excellence in the past. A number of educators believe that the sector will fragment into more specialized institutions, all of which will add value through more intensive use of digital technology, such as Anthony Seldon, vice chancellor of Buckingham University, and Glyn Davis, former vice chancellor of Melbourne University. To explore new income models and identify the next wave of innovation, they anticipate an increase in online programs. There have been vast

changes in the way students are taught over the past few decades. Technology has influenced how education is given and received in a variety of ways.

“Innovation that would have taken a decade has happened immediately. Going back to university this year will be as if it were 2030.” - Glyn Davis

With several advantages, digital learning has become an important component of the educational system. ICT (information and communication technology) provides numerous advantages for digital learning and student involvement. ICT trends in education have influenced schools and universities to adopt cutting-edge educational technology in order to improve the teaching and learning process.

FLEXIBLE LEARNING

As technology has advanced, educators are increasingly believing that personalized education improves learning outcomes. As a way to personalize learning, the flip classroom model involves students absorbing new materials at home and discussing them in class. Throughout history, technology has impacted learning and teaching approaches, such as self-learning and the flipped classroom.

Real-time analytics just weren’t possible before,
But now instructors can really understand how their classes are doing.
As a result, instructors have more involvement and connection with their students

- Heather Taylor

However, the content and pace of progress remain constant. To make teaching more effective, educators agree that educators should pay attention to how students interact with the subject and use technology to encourage engagement and interaction.

ONLINE RESOURCES

Technology has left its imprint on every possible subject, and education is no exception. The days of taking admission and attending classes to obtain a degree are long gone. Today, all you need is an insatiable drive for knowledge and a working internet connection to learn almost anything online. The wide array of online resources available to educators today can be somewhat intimidating. That is why it is more critical than ever to ensure that teachers and students have full access to high-quality, reputable online learning resources.

There are several types of online resources are follows

Toppr

Providing complete learning materials for CBSE, ICSE, state boards, and competitive exams such as JEE and NEET, Toppr is an online education resource for students in grades 5 through 12. More than 1,000 video courses are available on Toppr, making conceptual learning enjoyable.

Doubtnut

Doubtnut is an online interactive education resource for students and teachers. Doubtnut serves students in grades K-12, IIT, JEE, and NEET. This is a multilingual online education resource that serves 11 Indian languages and is popular among low-income people in need of low-cost educational services.

Meritnation

Meritnation is an online learning platform that offers learning solutions for classes 1st to 12th for CBSE, ICSE, and state boards. Meritnation leverages technology to break down traditional educational barriers and give customized self-paced learning. Along with K-12, this online education site offers Olympiad, Vedic maths, and French language solutions.

Zoom platform

The Zoom platform is now available for free in K-12 education. Schools around the country have embraced Zoom for live, online teaching and increasing student participation. It has removed the time limit on free accounts and made sophisticated collaboration and engagement features available to all K-12 schools. Zoom's education plan offers students and instructors a variety of skills at a reasonable cost in order to improve education and maximize learning outcomes.

e-PG Pathshala

The e-PG Pathshala platform offers 23,000 modules (comprising of e-text and video) of high-quality, curriculum-driven, interactive electronic content for 70 postgraduate disciplines, including social sciences, the arts, visual arts, and humanities, as well as scientific and mathematical sciences.

e-Shodh Sindhu

e-Shodh Sindhu offers comprehensive access to over 15,000 core and peer-reviewed journals, along with numerous bibliographic, citation, and factual databases across various disciplines. These resources are curated from a wide range of publishers and aggregators to cater to the diverse needs of researchers.

SIMULATION

In recent years, the realm of education has witnessed a remarkable transformation with the integration of digital simulations and modeling into the learning process. These innovative tools have opened up new avenues for students to engage with complex subjects in ways that were previously unimaginable with traditional teaching methods. This essay aims to delve into the profound influence of digital simulations and modeling on the learning process and explore the myriad advantages they bring to learners. One of the primary advantages of digital simulations and modeling is that they allow students to investigate complicated concepts in a safe and controlled environment. Simulations can be used to teach students about the environmental implications of climate change or to explain the effects of multiple variables on a chemical reaction. This enables students to experiment and examine results without the need for costly equipment or the risk of harm. Another advantage of digital simulations and modeling is that they can aid in the development of critical thinking skills in pupils. Students can test hypotheses and analyze the results of various scenarios by utilizing simulations and models. This assists children in developing problem-solving abilities and understanding cause-and-effect linkages. Furthermore, simulations can assist students in developing spatial reasoning and visualization skills, which are essential in many disciplines such as engineering and architecture.

Digital simulations and modeling can also contribute to more engaging and participatory learning. In a physics lesson, for example, students can use a simulation to investigate the properties of waves or the motion of objects in various settings. This form of interactive learning can assist students in remaining engaged and interested in the subject matter, resulting in improved retention and understanding of the concepts being taught.

COMSOL Multiphysics

The COMSOL Multiphysics is software tool, which is used to analysis a finite element, solver, and simulation software package for various physics and engineering applications, especially coupled phenomena and multiphysics. The software facilitates conventional physics-based user interfaces and coupled systems of partial differential equations

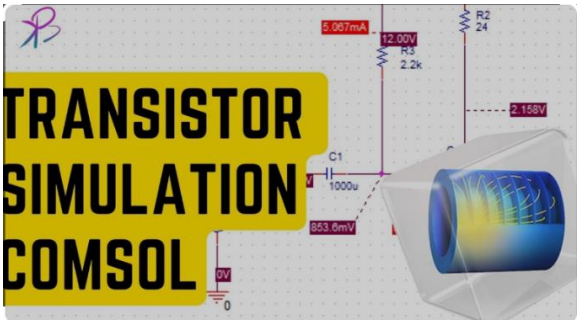

Fig. 1 A transistor simulation screenshot in COSMOL Multiphysics

Basic level simulations

Integrated Development Environment IDE of COMSOL provides an and unified workflow for electrical, mechanical, fluid, acoustics, and chemical applications.

Advance level simulations

The integrated Development Environment IDE of COMSOL provides an and unified workflow for AC/DC Module, Acoustics Module, Battery Design Module, CFD Module, Chemical Reaction Engineering Module, Composite Materials Module, Corrosion Module, Electrodeposition Module Fuel Cell & Electrolyzer Module, Heat Transfer Module, Liquid & Gas Properties Module, LiveLink for AutoCAD, LiveLink for Simulink, LiveLink for MATLAB, Material Library, MEMS Module, Metal Processing Module, Microfluidics Module, Mixer Module, Molecular Flow Module, Multibody Dynamics Module, Optimization Module, Particle Tracing Module, Pipe Flow Module, Plasma Module, Polymer Flow Module, Porous Media Flow Module, Ray Optics Module, RF Module, Semiconductor Module, Structural Mechanics Module, Subsurface Flow Module, Wave Optics Module and so on.

LEARNING MANAGEMENT SYSTEM (LMS)

A learning management system is a software tool that can be used to assign classes to students and send messages to students. Even our video material audio material PDF documents can be uploaded to the cloud. Assignments to students and attendance marks of students can be uploaded and reflected on parent and student portals. Students can upload their assignments depending on the assignment given by the faculty member. The last date for submission of work may be set by the faculty member. Faculty can send a group message using LMS. Nowadays there are many LMS providers and some of them are free service providers which are available for limited use and that too only for internal communication over LAN network. The cost of the LMS

is based on the number of users/students and the amount of storage capacity required or allocated in the cloud.

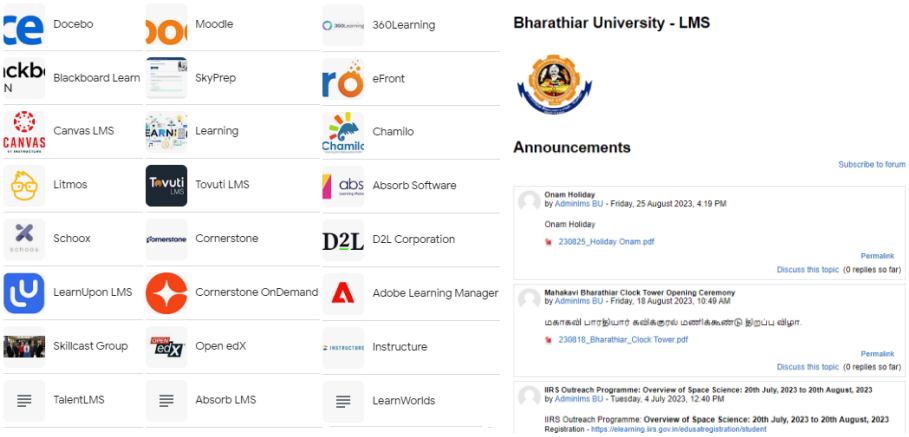

Fig. 2 Various LMS providers and A screenshot of Moodle-based LMS

The LMS providers are available in Education Technology and its upgradation marketing. Some of them are very familiar with their surface and support the clients. For example, Moodle, CANVAS and Google Classroom are famous among Indian users.

CONCLUSION

As per the discussion, the ICT-based teaching and mailing process is essential to explaining the complex problem and finding a way to solve the problem very easily. All the higher education institutes and school education institutes How we facility for ICT-based teaching and learning process to announce the learning capability of students and thus incorporate knowledge into them. So educational institute should facilitate their faculties to adopt ICT-based teaching and learning processes in a fast-track manner by giving proper hands-on training with the relevant ICT-based equipment. The implementation is not only for the sake of survival in the competitive world but also for nation development because teaching is nation-building.

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शिक्षा के क्षेत्र में इन्टरनेट की भूमिका

डॉ. वन्दना बर्वे, डॉ. रविन्द्र बर्वे,

प्राध्यापक
शासकीय स्नातकोत्तर महाविद्यालय,खरगोन

<u>प्रस्तावना -</u>

शिक्षा जीवन का एक महत्वपूर्ण हिस्सा है, जिसका अर्थ हैं सीखना या सिखाना । आज टेक्नोलॉजी शिक्षा के क्षेत्र में एक महत्वपूर्ण उपकरण हैं अगर छात्रों को टेक्नोलॉजी की सुविधा क्लासरूम मे मिलेगी तो शैक्षिक वातावरण काफी अच्छा होगा । इन्टरनेट एक अत्यधिक बलशाली एवं गतिशील संचार माध्यम हैं उच्च शिक्षा हेतु छात्र तथा शिक्षकों को इसमें आने वाली नित्य नयी जानकारी से अवगत होने के लियें इन्टरनेट सेवा का उपयोग करना पडता हैं । इसमें ज्ञान का खजाना हैं जो किसी की भी खोज कर तुरन्त उपलब्ध है।

प्राचीन काल मे मौखिक शिक्षा प्रदान की जाती थी । बाद में शिक्षा मेंलिखित शब्दों का उपयोग होने लगा । म्रुदण के अविष्कार के साथ पुस्तकें उपलब्ध होने लगी । इसके बाद रेडियों तथा टेलीविजन के अविष्कार ने शिक्षा के क्षेत्र में क्रान्तिकारी परिवर्तन कर उसे एक नया स्वरूप में प्रदान किया। किसी ने कल्पना भी नही की थी कि सारी शिक्षा की विषयवस्तु, पाठ्यक्रम, शोध पत्र, ई-बुक्स, ई-लाईब्रेरी, एक डिब्बे मे बंद हो जायेगी और संसार का कोई भी व्यक्ति कहीं भी किसी भी कोने मे बैठकर ऑनलाईन अध्ययन कर उच्च शिक्षा की डिग्री प्राप्त कर सकेगा । आज मल्टीमीडिया और इन्टरनेट के प्रयोग ने एक नयें युग की शुरूवात की हैं। शिक्षा मे इन्टरनेट का इस्तेमाल निश्चित तौर पर पांरपरिक शिक्षा के क्षेत्र में काफी बदलाव लाया है।

<u>इन्टरनेट की भूमिका -</u> 1. इन्टरनेट ने विद्यार्थियों को अपनी मर्जी अपने समय और स्थान के अनुसार अध्ययन को आगे बढानें का विकल्प दिया हैं। विद्यार्थी पाठ्य सामग्री तक पलक झपकतें पहुंच जाता हैं वो खोज करके सीखता हैं खेल की यह प्रक्रिया विद्यार्थियों को नई सूचनाओं को जानने के लियें प्रेरित करती है।

2. उच्च शिक्षा के क्षेत्र में आधुनिक शिक्षण मशीनों जैसे स्मार्टफोन, लेपटॉप, टेबलेट, प्रोजेक्टर आदि का प्रयोग बढता जा रहा हैं। मशीनों के प्रयोग से शिक्षक अपने विद्यार्थियों को आसानी से अपने ज्ञान कौशल से लाभांवित कर सकता है।

3. ऑनलाईन शिक्षा का सही इस्तेमाल शिक्षा के साधनों का काफी हद तक सुधार कर सकता है। इसके साथ ही शिक्षकों को तैयारी करने और छात्रों के दायरे को बडा करने का विकल्प भी देता है।

4. अध्ययन के लिये पुस्तकों की आवश्यकता होती है जिसें खरीद पाना सभी के लिये सम्भव नही होता हैं अत: आजकल ऑनलाईन गुक रीडिंग का प्रचलन बढता जा रहा हैं। ई-बुक्स को विद्यार्थी मुफ्त में या कुछ शुल्क अदा कर पढ सकता है। इन्टरनेट पर शोधपत्र व शोध ग्रंथ भी उपलब्ध होते हैं जिसका लाभ शोधार्थी उठा सकतें हैं।

5. ऐसा व्यक्ति जो व्यापार या अन्य कार्य की वजह से कक्षा में नही जा सकता वह ऑनलाईन घर या ऑफिस में बैठकर अपना अध्ययन कर सकता है व परीक्षा भी दे सकता हैं ।

6. विभिन्न विश्वविद्यालय आज डिस्टेन्स लर्निग प्रोग्राम/ऑनलाईन सर्टिफिकेशन कोर्स ऑफर करते हैं जिसका लाभ विद्यार्थी उठा सकते हैं।

शोध प्रविधि - प्रस्तुत शोध पत्र में प्राथमिक व द्वैतिकय स्त्रोंत का सहारा लिया गया है। प्रश्नावली के माध्यम से विद्यार्थी से कुछ प्रश्नों की जानकारी प्राप्त की तथा पुस्तकों, समाचार पत्र, विभिन्न वेबसाईट्स के माध्यम से तथ्यों का संकलन किया है।

स्नातकोत्तर महाविद्यालय, खरगोन के 50 विद्यार्थियों से कुछ प्रश्नों की जानकारी प्राप्त की तो ज्ञात हुआ कि -

1. शैक्षिक कार्यो के लियें 70 प्रतिशत विद्यार्थी किताबों का उपयोग करते हैा तो 30 प्रतिशत किताब व इन्टरनेट दोनो का प्रयोग करते है। कुछ बच्चे गरीबी व दुरस्थ स्थान पर रहने की वजह से इसका उपयोग नही कर पातें हैं।
2. शैक्षिक कार्य के लियें इन्टरनेट का उपयोग एक अच्छा माध्यम हैं ऐसा अधिकांश 90 प्रतिशत का मानना है।
3. इन्टरनेट ने उच्च शिक्षा को आसान बनाया है ऐसा अधिकांश 95 प्रतिशत का मानना है।
4. केवल 20 प्रतिशत विद्यार्थी ऐसे हैं जो उच्च शिक्षा विभाग द्वारा बनायें गये यूट्यूब

विडियों(ई-कटेंट) द्वारा टॉपिक का अध्ययन करते है।

5. इन्टरनेट के उपयोग मे 90 प्रतिशत हिन्दी भाषा को सरल मानते हैं।
6. महाविद्यालय मे उपलब्ध N-List द्वारा किताबों का अध्ययन केवल 10 प्रतिशत छात्र व 40 प्रतिशत शिक्षक करते है ।

<u>सुझाव -</u> निम्न सुझावों को अपनाने की अवश्यकता हैं-

1. महाविद्यालय में इन्टरनेट की सुविधा को हर विद्यार्थी तक पहुचाने का प्रयास किया जाए इसके लियें हाईस्पीड और विश्वसनीय ब्राडबैंड कनेक्शन होना चाहियें।
2. महाविद्यालयों मे INFLIB-NET साफ्टवेयर की सुविधा दी जाए तथा अधिक से अधिक विद्यार्थी व प्राध्यापक को इनकी विभिन्न सुविधाओं से जुडने के लियें प्रेरित किया जाए ।
3. Smart class के माध्यम से अध्ययन को रूचिकर बनाया जाए।
4. सामाजिक व आर्थिक दिक्कतों के कारण ऑनलाईन शिक्षा मे रूकावट आती हैं इस पर भी सरकार को ध्यान देना चाहियें ।
5. स्वयं पोर्टल का प्रयोग अभी केवल शहरों तक सीमित हैं यह एक लर्निग पोर्टल हैं जो नि:शुल्क हैं यह विद्यार्थी को उच्च शिक्षा गुणवत्ता की ऑनलाईन शिक्षा उपलब्ध कराता है। इसकी जानकारी विद्यार्थियों तक पहुंचाने का प्रयास किया जाए ।

<u>निष्कर्ष -</u> इस प्रकार इन्टरनेट ने शिक्षा के क्षेत्र में तेजी दी हैं। शैक्षिक संसाधनों की गुणवत्ता और इससे जुडे टेटा की संख्या को बढाया है।

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Impact of Technology on Education: A pathway to academic Excellence

Prof. (Dr.) Shail Joshi

Dept. of Zoology
Govt. P. G. College, Khargone

Key words: Modern Technology, Academic Excellence

The world is witnessing a rapid transformation in education, primarily driven by modern technology. From traditional classrooms to online platforms, educational institutions embrace technology to enhance the teaching and learning experience. This paradigm shift has profoundly impacted educators and students, ultimately contributing to academic excellence. Globally, technology is changing education and it offers several new possibilities for today's educational institutions of all kinds. Technology is now used to enhance traditional teaching methods, supplement traditional teaching methods, and provide digital resources for students. Technology can also be used to provide interactive learning opportunities. Additionally, technology can be utilized to enhance the way information is transmitted, improving the effectiveness and efficiency of learning.

The Internet has become an invaluable resource for both students and teachers. Students & Teachers can access vast information, research papers, and academic journals with a few clicks. This immediate access to information promotes independent research and critical thinking, essential academic success skills.

Modern technology allows educators to collect and analyse data on student performance more efficiently. Through learning analytics, teachers can identify areas where students may be struggling and intervene early with targeted support. Assessment methods have also evolved with technology. This efficiency in assessment contributes to a more effective learning environment.

It is beyond discussion that modern technology has a positive impact on academic excellence, teaching, and learning. It has improved accessibility, personalization, engagement, and global connectivity in education. Additionally, technology gives students the knowledge and abilities they need to succeed in a digital environment that is continually changing. To create a complete educational environment where students are empowered to succeed academically and beyond, it

is crucial to strike a balance and make sure that technology complements traditional teaching techniques.

In conclusion, in an increasingly digital world, proficiency in using modern technology is a crucial skill. By integrating technology into education, students are not only learning subject matter but also gaining digital literacy skills that are essential for success in the modern workforce. This preparation for the future is a significant contribution to academic excellence.

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Integration of Technology in Education: A Pathway to Inclusive Development

Aishwarya Dilaware[1], Lalit Kumar Bhataniya[1]

[1]Assistant Professor, Physics
[1]Govt. P. G. College, Khargone
Email: aish.dilaware@gmail.com

Abstract:

Modern technology has revolutionized various aspects of human life, including education. The rapid advancement of modern technology is driving a transformation in education. Educators can reimagine traditional teaching methods by harnessing personalized and adaptive learning, global collaboration, and online platforms, making education more accessible, engaging, and effective. This Paper explores how the strategic integration of modern technology in education can play a crucial role in fostering inclusive development within societies. By addressing barriers to education, enhancing accessibility, and promoting diverse learning experiences, technology-driven education can transform societies into more equitable, empowered, and inclusive entities to achieve sustainable development goals.

Key Words: Education, Modern Technology, Inclusive development, Sustainable development goals, quality education, digital literacy, global citizenship, environmental awareness

Introduction

The rapid development of modern technology has had a significant impact on education. Integrating technology into educational practices can revolutionize traditional teaching and learning methods, making education more accessible, personalized, and effective. This article explores key strategies to leverage modern technology to transform education. Through this, we can also strive to achieve academic excellence. Sustainable human development is a modern subject of interest that has gained relatively great importance recently, that can be measured in any country through a range of indicators, including education indicators and the extent of the spread of knowledge and their role in building sustainable human development [3].Strategic integration of modern technology in education can contribute to the realization of SDG No. 4, i.e., Quality Education. Technology-driven education can accelerate progress toward a more sustainable and

equitable world by promoting quality education, fostering innovation, enhancing access to information, and cultivating inclusive development.

Breaking Down Barriers to Education:

Modern technology has the capacity to break down traditional barriers that hinder access to education. Online learning platforms, digital resources, and e-books enable learners from marginalized communities, remote regions, and socioeconomically disadvantaged backgrounds to access quality education regardless of their geographical location, ensuring that quality education reaches even the most remote corners of the world and advancing SDG 4.

Bridging Gender Gaps:

Technology-driven education can play a crucial role in bridging gender gaps. Online platforms provide a safe and flexible learning environment, making education more accessible for girls and leading to women's empowerment. By challenging stereotypes and prejudices and promoting gender equity, technology fosters inclusive social change, bringing individuals to par, hence promoting SDG 5 i.e., Gender equality.

Education for Diverse Learning Needs:

Technology can fulfill diverse learning needs. It allows educators to personalize learning experiences and adapt teaching methodologies to accommodate different learning styles, paces, and abilities. This customization ensures that education is inclusive and practical for every student, irrespective of age or gender.

Skill-Development:

The integration of technology helps in equipping individuals with skills that are relevant in a rapidly changing world. The availability of different Learning platforms like Swayam offers online courses for management, computational skills, programming languages, fashion technology, fine arts, art, and culture, enabling individuals to adapt to evolving job markets and scenarios.

Empowering Individuals with Special Abilities:

Assistive technologies and adaptive learning platforms like Braille displays, screen reading software, talking devices, etc., create an inclusive environment, enabling students with disabilities to participate fully in educational activities. This digital technology fosters empowerment and equips them with skills for independent living.

Global Collaboration and Cultural Exchange:

Modern technology can bring the world into the classroom. Virtual classrooms, online projects, and collaborative platforms facilitate cross-cultural communication and the development of a global perspective, enabling learners to collaborate across the globe and promoting Global citizenship-- the sense of *Vasudev kutambhakam* for peace and harmony.

Environmental Awareness:

Technology enhances environmental education by providing immersive experiences through virtual & augmented reality and interactive simulations. Educators can educate students about sustainability, climate change, and conservation, aligning with SDGs related to environmental protection hence cultivating Eco-Consciousness.

Figure Source [10]

Challenges and Strategies to address them

Infrastructure:

Inadequate infrastructure in some regions can hinder the effective use of technology. Power outages, limited internet connectivity, and outdated hardware can disrupt online learning. To overcome this, Prioritizing infrastructure development, including high-speed internet connectivity,

ensuring a stable power supply, maintaining hardware, and also including Public-Private Partnerships can help, which will promote SDG no. 17, i.e., Partnership for Goals.

Digital Divide:

Students need to have access to digital devices and proper internet connections. The digital divide intensifies educational inequalities, leaving some students at a disadvantage. To overcome this, Governments, schools, and NGOs can implement initiatives to provide digital devices and internet access to underserved communities, hence promoting goal no. 10 (Reduce inequality)

Teacher Training:

Many educators may need to be adequately trained to use technology in teaching or to cater to diverse learning needs through digital tools. To help this, comprehensive training for educators to enhance their digital literacy and skills should be provided. Providing extra perks may also encourage teachers to learn new technological skills.

Financial limitations:

Implementing and maintaining technology in education can be expensive. Schools and institutions must allocate budgets for devices, software licenses, maintenance, and infrastructure development. Grants for schools and institutions to procure digital devices can be effective in developing infrastructure.

Standardizing Assistive Technologies:

Ensuring educational technology is accessible to students with special-abilities can be challenging. Many digital resources are not designed with accessibility, making it difficult for disabled students to participate fully. Hence, by ensuring that all digital educational resources adhere to accessibility standards, like WCAG (Web Content Accessibility Guidelines) given by World Wide Web consortium, we can make education accessible for all.

Privacy and Security:

Protecting student data and ensuring online safety is paramount. Data breaches and cybersecurity threats can compromise the privacy of students and educators. To overcome this, strict data protection policies to be enforced, and educators, students, and parents should be educated about the importance of data privacy.

Content Quality:

Not all digital educational content is of high quality. Ensuring students access accurate, up-to-date, and culturally sensitive material can be challenging. Therefore, a body or organization should be established for content censorship and certification.

Conclusion:

Modern-technological innovations in education will play a crucial role in advancing the Sustainable Development Goals. By addressing barriers to education through collaborations between educational institutions and technology providers, community engagement, and fostering quality education, innovation, enhancing accessibility, fulfilling diverse learning needs, global citizenship, and digital literacy, technology empowers learners to become agents of constructive change. Undoubtedly, integrating technology into education will accelerate progress and cultivate informed and empowered individuals, thus will help to shape an inclusive future.

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The Role and Importance of Libraries in the Age of the Digital Era

Govind Yadav[1], Ashish Mishra[2] and Shailesh Kr. Singh[3]

[1]Librarian, Government PG College Khargone, MP
[2]Librarian, Buniadpur Mahavidyalaya, South Dinajpur, WB
[3]Librarian, Government Vivekanand PG College Maihar, Satna,MP
E-mail: gykashi@gmail.com

Abstract

Libraries have been a cornerstone of knowledge dissemination and preservation for centuries. With the advent of the digital era, there has been a paradigm shift in the way information is accessed and consumed. This research article explores the evolving role and importance of libraries in the context of the digital age. It delves into the challenges and opportunities presented by technology and highlights how libraries continue to play a vital role in promoting information literacy, fostering community engagement, preserving cultural heritage, and bridging the digital divide. The article emphasizes that libraries are not rendered obsolete by the digital revolution; rather, they have adapted and evolved to remain relevant and essential in the modern information landscape.

Keywords: digital library, e-learning, modern technologies

I. Introduction

The history of libraries dates back to ancient times, with early examples found in India, Mesopotamia and Egypt. However, the advent of digital libraries in the late 20th century marked a transformative shift. Michael Buckland, a renowned information scientist, noted that digital libraries emerged as a response to the digital age, with the first significant project being the 1979 Online Computer Library Center (OCLC) initiative. These digital repositories enabled global access to information, transcending physical boundaries. As Buckland emphasized, they represent a paradigm shift in information dissemination, harnessing technology to make vast knowledge resources accessible to a digital-savvy world.

The Digital Age Transformation

The Digital Age Transformation has revolutionized libraries, ushering in a new era of information access and dissemination. As noted by Susan Gibbons, an expert in library science, this

transformation is characterized by the shift from print to digital formats, enabling libraries to expand their reach and services. Digital libraries, such as the Digital Public Library of America (DPLA), have played a pivotal role. They have democratized information by providing free online access to extensive collections. Moreover, the proliferation of e-books, online databases, and multimedia resources has made learning and research more accessible, empowering individuals in this digital age to explore and harness knowledge as never before.In India The Digital Library of India (DLI) is such a project that aims to create a virtual repository of learning resources for the learners and users community. It is sponsored by the Ministry of Education, Government of India, through its National Mission on Education through Information and Communication Technology (NMEICT). It is developed, operated and maintained by the Indian Institute of Technology Kharagpur.

The DLI provides free access to over 58 million online resources in various formats, such as eBooks, journals, articles, videos, audio books, lectures, simulations, fiction and more. The content covers various subjects and disciplines, such as engineering, science, humanities, literature, law, management, etc. The resources are available in several Indian languages and users can choose from over a million eBooks to read and learn online

II. Libraries: Traditional and Digital

The Evolution of Libraries

The Evolution of Libraries is a fascinating journey that has witnessed profound changes, especially with the emergence of digital libraries. Historically, libraries were repositories of physical books and documents. However, the advent of digital technology has transformed them into dynamic, digital information hubs. As noted by Joan Lippincott, libraries have evolved from being gatekeepers of information to facilitators of access, embracing digitization and online catalogues. The digitization of texts, multimedia, and archives has expanded their collections, while advancements like metadata standards and search algorithms have improved retrieval. This evolution underscores libraries' enduring commitment to providing knowledge, now in a digitized, accessible form.

Traditional Library Functions

Traditional Library Functions encompass activities like collection development, cataloguing, and reader services that have evolved significantly in the age of digital libraries. According to Michael

Gorman, a prominent library scholar, these functions historically revolved around curating physical collections, classifying books, and aiding patrons in locating materials. In the digital era, they have expanded to include managing electronic resources, ensuring data integrity, and offering virtual reference services. Additionally, digital libraries employ user-friendly interfaces and metadata schemes to enhance discoverability. Traditional library functions remain integral, but they have adapted to the digital landscape, preserving their core principles of organizing and facilitating access to knowledge.

The Emergence of Digital Libraries

The emergence of Digital Libraries represents a transformative shift in the world of information access and dissemination. Digital libraries are online repositories of a wide range of digital content, including books, journals, multimedia, and archival materials. They have become increasingly prominent since the late 20th century, driven by advances in technology and the desire to make information more accessible.

One of the pioneering efforts in digital libraries was the 1979 Online Computer Library Center (OCLC) initiative, which aimed to automate library cataloguing and interlibrary lending processes. This project laid the foundation for future digital library developments.

The advent of the internet and the World Wide Web in the 1990s accelerated the growth of digital libraries. Institutions like the Library of Congress and academic libraries began digitizing their collections, making them available online. The Digital Public Library of America (DPLA), launched in 2013, further exemplified the potential of digital libraries by providing free access to millions of items from libraries, museums, and archives across the United States.

Key characteristics of digital libraries include:

1. Global Access: Digital libraries transcend geographic boundaries, allowing people worldwide to access information.

2. Diverse Content: They host a vast array of content types, from textual documents to images, audio, and video.

3. Searchability: Advanced search features and metadata make it easier for users to find relevant materials quickly.

4. Preservation: Digital libraries contribute to the preservation of cultural heritage by digitizing and archiving rare and fragile materials.

III. The Changing Role of Libraries

Information Access and Curation

The changing role of libraries in information access and curation is a response to the evolving digital landscape. Traditionally, libraries were primarily seen as physical repositories of books and documents. However, in the digital age, their role has expanded to encompass a broader set of functions aimed at facilitating information access and ensuring the quality and relevance of curated resources.

Libraries have become gateways to a world of digital information. They provide online access to a vast array of resources, including e-books, scholarly databases, and multimedia content. They have transitioned from being mere keepers of knowledge to active facilitators of knowledge discovery.

One crucial aspect of this changing role is the curation of digital collections. Libraries curate and organize digital resources to ensure their discoverability and relevance. Metadata standards and advanced search functionalities are employed to enhance access and usability. The goal is to guide users through the information landscape, helping them find authoritative and contextually relevant materials.

Librarians also play an essential role in teaching digital literacy skills. They offer training programs to help users navigate online resources effectively, critically evaluate information, and use digital tools for research and learning.

In this transformed role, libraries continue to serve as trusted information providers in the digital age. They bridge the digital divide, ensuring that all individuals, regardless of their technological proficiency, can access and benefit from the wealth of digital knowledge available.

As R. David Lankes, a prominent library scholar, notes, libraries are not just about books; they are about knowledge and the communities they serve, and in the digital era, they continue to fulfil this mission by adapting to the changing needs of their patrons.

Knowledge Dissemination

The role of libraries in knowledge dissemination has evolved significantly in response to the digital age. Traditionally, libraries were seen as static repositories of information, primarily focused on collecting, organizing, and preserving physical materials like books and journals. However, in the contemporary digital era, libraries have taken on a dynamic role in disseminating knowledge.

Libraries have transitioned from being mere gatekeepers of information to active facilitators of access. They curate vast digital collections, providing users with online access to an extensive range of resources beyond printed materials. This transformation aligns with the view of Lankes (2011), who advocates for libraries as platforms for knowledge creation and sharing rather than as warehouses of books.

Moreover, libraries have embraced technology to enhance knowledge dissemination. Online catalogs, electronic databases, and digital repositories offer seamless searching and retrieval of information. Libraries provide access to e-books, scholarly articles, multimedia content, and open educational resources, thereby expanding the scope of knowledge dissemination. These developments align with the vision of Buckland (1997), who recognized that digital libraries would redefine the roles of librarians and libraries in the information age.

IV. Importance of Libraries in the Digital Era

Bridging the Digital Divide

Libraries play a pivotal role in the digital era by bridging the digital divide, a critical issue in today's information society. The digital divide refers to the gap between individuals and communities who have access to digital technologies and those who do not. This divide can create significant disparities in access to information, education, and opportunities. Libraries, as noted by McMillan (2016), serve as key equalizers in this context, ensuring that everyone, regardless of socioeconomic status, can benefit from digital resources.

Libraries offer free access to computers, high-speed internet, and digital tools, helping individuals without personal devices or internet connections to engage in online learning, job searches, and accessing essential government services. This aligns with the principles of digital inclusion advocated by Van Dijk (2006), emphasizing the importance of providing access and skills to all.

Furthermore, libraries provide digital literacy programs and training sessions to empower users with the skills needed to navigate the digital landscape. By offering assistance with tasks such as

online research, digital communication, and using software applications, libraries contribute to enhancing the digital competencies of their communities.

Preserving Cultural Heritage

In the digital era, libraries assume a critical role in preserving cultural heritage. As repositories of historical documents, manuscripts, rare books, photographs, and other unique artifacts, libraries serve as guardians of a society's collective memory (Erway, 2011). Digitization efforts, in alignment with this role, have become instrumental in safeguarding and disseminating these cultural treasures to a global audience.

Digitization, as highlighted by Deegan and Tanner (2002), allows libraries to create digital archives of delicate and aging materials, ensuring their long-term preservation. These digital copies serve as backups, reducing the risk of loss due to natural disasters or physical deterioration.

Additionally, digital libraries make cultural heritage materials accessible to a wider audience, transcending geographical boundaries. This aligns with the principles of UNESCO's Memory of the World program, which seeks to promote universal access to documentary heritage (UNESCO, n.d.).

Furthermore, digital libraries often collaborate with cultural institutions and archives, fostering partnerships that amplify the preservation and accessibility of cultural heritage materials. This collaborative approach extends the reach and impact of preservation efforts (Holley, 2010).

Supporting Lifelong Learning

In the digital era, libraries are instrumental in supporting lifelong learning, a concept that emphasizes continuous education and skill development throughout an individual's life. Libraries have evolved into dynamic learning hubs, providing access to a vast array of digital resources and services to facilitate lifelong learning.

One of the key roles of libraries in lifelong learning is offering free access to a wide range of digital educational materials, including e-books, online courses, and scholarly databases (Lee, 2019). Libraries enable individuals to pursue self-directed learning, regardless of their age or

educational background. Moreover, they provide personalized guidance and assistance through trained librarians, aligning with the concept of personalized lifelong learning (Beacham, 2019).

Furthermore, libraries foster digital literacy, helping users navigate the digital landscape effectively. By offering workshops, training programs, and access to technology, libraries empower individuals to acquire essential digital skills (Bertot et al., 2017).

Libraries also serve as community learning spaces where people can collaborate, engage in discussions, and attend events that promote learning and intellectual growth (Jaeger et al., 2014).

V. Challenges Faced by Libraries in the Digital Age

Information Overload

In the digital age, libraries confront numerous challenges, and one prominent issue is coping with information overload. Information overload occurs when individuals are inundated with an overwhelming volume of information, making it difficult to locate, evaluate, and utilize relevant resources effectively (Eppler & Mengis, 2004).

Libraries are at the forefront of addressing this challenge. As digital repositories expand, libraries must curate and organize vast collections of digital content, ensuring that users can navigate and find information efficiently (Kwanya et al., 2012). This requires robust metadata, effective search algorithms, and user-friendly interfaces to facilitate information discovery (Borgman, 2015).

Moreover, librarians play a crucial role in assisting users in sifting through the digital deluge. They provide guidance on information literacy, helping individuals develop the skills to critically assess and filter the information they encounter (Bruce, 2013). Librarians also curate subject-specific digital collections to reduce the cognitive burden on users (Rowley & Farrow, 2000).

Privacy and Security Concerns

In the digital age, libraries encounter significant challenges related to privacy and security concerns. As they transition to digital platforms and services, libraries must grapple with safeguarding user data and ensuring the security of their digital collections.

One critical issue is the protection of patron privacy (Meyer, 2009). Libraries have a long-standing tradition of respecting user confidentiality, but in the digital realm, tracking and monitoring user activities can inadvertently compromise privacy. Striking a balance between collecting data for library analytics and preserving user privacy is a complex challenge (Angell & Regan, 2018).

Additionally, libraries must address security vulnerabilities to protect their digital resources from cyberattacks and data breaches (Chowdhury & Chowdhury, 2020). These attacks can lead to the theft of sensitive user information or the disruption of library services, compromising the trust users place in libraries.

Libraries must also contend with the ethical dilemmas posed by digital collections, such as ensuring the responsible digitization and dissemination of culturally sensitive or copyrighted materials (Besser, 2002).

Funding and Sustainability

In the digital age, libraries encounter significant challenges related to funding and sustainability. As they embrace digital technologies and services, they often require increased financial resources to support these initiatives, which can strain their budgets.

One key challenge is securing sustainable funding for digital infrastructure and content acquisition (Fry, 2016). The shift towards digital collections, electronic databases, and technology-driven services requires ongoing investments in hardware, software, and subscriptions. Libraries must contend with budget limitations while striving to meet the evolving needs of their patrons.

Moreover, funding uncertainty can threaten the long-term sustainability of digital initiatives (Bosch, 2019). Libraries often rely on a combination of government funding, grants, and donations, all of which can fluctuate or be subject to budget cuts. This makes it challenging to maintain consistent and reliable digital services.

To address these challenges, libraries must engage in strategic planning, advocate for increased funding, and explore alternative revenue streams (Connelly, 2015). Collaborative partnerships with other institutions and organizations can also help share costs and resources, enhancing sustainability efforts (Boock, 2017).

VI. Innovative Practices in Modern Libraries

Digital Resource Management

Innovative practices in modern libraries encompass a wide range of strategies and technologies, with digital resource management being a pivotal area. Digital resource management involves the organization, preservation, and accessibility of digital content, enabling libraries to maximize the value of their digital collections.

Digital resource management leverages advanced technologies such as digital asset management systems and content management systems to efficiently catalogue, store, and retrieve digital resources (Howarth, 2013). These systems enable libraries to handle diverse content types, from e-books and multimedia to research data and digitized archives, with precision and scalability.

Moreover, digital resource management fosters collaboration and resource sharing among libraries and institutions. Interoperable systems and standardized metadata facilitate the exchange of digital assets, creating a rich and interconnected knowledge ecosystem (Witt, 2013).

Furthermore, digital resource management empowers libraries to enhance user experiences. User-friendly interfaces, robust search capabilities, and personalized content recommendations make it easier for patrons to discover and engage with digital resources (Griffey, 2013).

Virtual Reality and Augmented Reality in Libraries

Innovative practices in modern libraries are increasingly incorporating virtual reality (VR) and augmented reality (AR) technologies to enhance user experiences and educational opportunities. VR immerses users in a computer-generated environment, while AR overlays digital information onto the real world. These technologies are transforming the way libraries engage with patrons and deliver information (Ramanathan, 2018).

Libraries are leveraging VR for interactive storytelling, immersive educational experiences, and virtual tours of historical sites or distant locations. For instance, the New York Public Library offers virtual tours of famous landmarks through VR headsets, enabling users to explore cultural heritage sites from the library's premises (Rothman, 2017).

AR, on the other hand, enhances physical spaces with digital overlays. Libraries can use AR to provide additional information about exhibits, books, or artworks through smartphone apps or AR glasses, creating engaging and interactive experiences for visitors (Kadir et al., 2017).

These technologies align with the library's evolving role as a dynamic learning environment. They facilitate innovative educational experiences and foster digital literacy skills among patrons. Furthermore, they make learning and exploration more inclusive and accessible (Cromwell, 2019).

VII. The Future of Libraries in the Digital Age

Trends in Library Technology

The future of libraries in the digital age is closely intertwined with the ever-evolving landscape of library technology. Several trends are shaping the direction libraries are taking in embracing the digital era.

1. **Artificial Intelligence (AI) and Machine Learning:** Libraries are increasingly using AI to enhance user experiences. AI-powered chatbots provide real-time assistance, while machine learning algorithms help in personalized content recommendations and collection management (Mattern, 2018).

2. **Data Management and Analytics:** Libraries are becoming data-driven institutions, utilizing data analytics to assess usage patterns, inform collection development, and improve services. This trend enhances decision-making processes (Baker & Evans, 2019).

3. **Open Access and Open Educational Resources (OER):** Libraries are at the forefront of promoting open access to scholarly content and supporting the adoption of OER in academia. These initiatives contribute to equitable access to knowledge (Wiley, Hilton, Ellington, & Hall, 2012).

4. **Digital Preservation:** With the growing amount of born-digital content, libraries are focusing on robust digital preservation strategies to ensure long-term access to digital collections (Pearce-Moses, 2018).

5. **IoT and Smart Libraries:** The Internet of Things (IoT) is being integrated into libraries to enhance security, improve energy efficiency, and provide real-time tracking of resources (Mak, 2018).

6. **Remote and Mobile Access:** Libraries are expanding their digital offerings to provide seamless remote access to resources, making it convenient for users to engage with library services from anywhere (Leach & Sale, 2019).

These trends illustrate how libraries are adapting to the digital age, embracing technology to enhance user services, improve resource management, and facilitate equitable access to knowledge.

Potential Innovations

The future of libraries in the digital age holds immense potential for groundbreaking innovations that will further transform these institutions into dynamic hubs of knowledge and community engagement.

1. **Virtual Reality Libraries:** As virtual reality (VR) technology continues to advance, libraries may create fully immersive virtual spaces where users can explore digital collections, attend events, and engage with interactive educational experiences, transcending geographical constraints (Owusu-Ansah & Grob, 2017).

2. **Blockchain for Libraries:** Blockchain technology has the potential to enhance security, transparency, and authenticity of library transactions, such as lending, copyright management, and provenance tracking of rare materials (Zhang & Xie, 2018).

3. **AI-Powered Research Assistance:** Advanced artificial intelligence (AI) systems can provide personalized research support, recommending resources, assisting with information retrieval, and even facilitating natural language conversations with virtual librarians (McArthur et al., 2018).

4. **Community Engagement Platforms:** Future libraries may leverage social media and digital platforms to create vibrant online communities, fostering discussion, collaboration, and knowledge sharing among library users (Mizrachi & Provost, 2019).

5. **Advanced Data Visualization:** Libraries could integrate sophisticated data visualization tools to help users better comprehend complex information, especially in fields like science, technology, engineering, and mathematics (STEM) (Dawson, 2017).

These potential innovations demonstrate that libraries are poised to adapt, evolve, and remain relevant in the digital age. By embracing cutting-edge technologies and reimagining their roles, libraries can continue to serve as vital centres for learning, exploration, and community engagement.

VIII. Conclusion

In conclusion, the role and importance of libraries have evolved in the age of the digital era. Libraries have proven to be resilient and adaptive, embracing technology to enhance their traditional functions. From promoting information literacy to fostering community engagement and bridging the digital divide, libraries remain indispensable pillars of society. The digital age has not rendered libraries obsolete; rather, it has highlighted their enduring significance in an ever-evolving information landscape. As technology continues to reshape how we access and consume

information, libraries will persist in their mission to provide equitable access to knowledge and enrich the lives of individuals and communities.

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ग्रामीण और दूर-दराज के क्षेत्रों में आईसीटी के साथ शिक्षण और सीखना: कठिनाइयाँ और अवसर

डॉ दिनेश चौधरी

सहायक प्राध्यापक (भौतिकी)
शासकीय स्नातकोत्तर महाविद्यालय खरगोन

हमारे देश की अधिकांश जनसंख्या ग्रामीण क्षेत्रों में रहती है। देश की लगभग 70% आबादी ग्रामीण क्षेत्रों में रहती है| सूचना एवं संचार प्रौद्योगिकी (आईसीटी) कई अलग-अलग क्षेत्रों में ग्रामीण क्षेत्रों के विकास के लिए आवश्यक है, और इसने ग्रामीण क्षेत्र के विकास में महत्वपूर्ण योगदान दिया है। इसका उपयोग ग्रामीण क्षेत्रों में शिक्षा, कृषि, स्वास्थ्य देखभाल और कई अन्य उद्योगों सहित विभिन्न उद्योगों को आगे बढ़ाने के लिए किया जाता है। हालाँकि आईसीटी के विकास और ज्ञान की कमी के कारण ग्रामीण क्षेत्रों में विकास की प्रक्रिया अपेक्षाकृत सीमित है, फिर भी इसका ग्रामीण क्षेत्रों के विकास पर महत्वपूर्ण प्रभाव पड़ता है।

जब शिक्षा में सूचना और संचार प्रौद्योगिकी (आईसीटी) को एकीकृत करने की बात आती है तो भारत में दूरदराज और ग्रामीण क्षेत्रों में शिक्षण और सीखने को कई अनूठी चुनौतियों का सामना करना पड़ता है। यहां कुछ विशिष्ट चुनौतियाँ हैं:

1. बुनियादी ढांचा और कनेक्टिविटी: भारत के कई दूरदराज और ग्रामीण इलाकों में विश्वसनीय बिजली और इंटरनेट कनेक्टिविटी का अभाव है।बुनियादी ढांचे की इस कमी के कारण आईसीटी पहलों के क्रियान्वयन में काफी बाधा आ सकती है। ग्रामीण क्षेत्रों में इंटरनेट कनेक्टिविटी सीमित होना या न होना एक बड़ी चुनौती है। अगर इंटरनेट की पहुंच है भी, तो यह धीमी और अस्थिर हो सकती है, जिससे आधुनिक ऑनलाइन सेवाओं और एप्लिकेशन के उपयोग में बाधा आ सकती है।

2.विविध भाषाई पृष्ठभूमि और सीमित भाषा संसाधन: ग्रामीण और दूरदराज के क्षेत्रों में, छात्र स्वदेशी भाषाओं और बोलियों सहित विविध भाषाई पृष्ठभूमि से आते हैं। शिक्षकों को भाषा संबंधी

बाधाओं को दूर करने और उनकी शिक्षण विधियों में विभिन्न भाषाएँ शामिल करने की है। ग्रामीण और दूरदराज के क्षेत्रों में गुणवत्तापूर्ण भाषा संसाधनों, जैसे पाठ्यपुस्तकें, पठन सामग्री और भाषा सीखने के उपकरण तक पहुंच सीमित है।

3.शिक्षक प्रशिक्षण: ग्रामीण क्षेत्रों में शिक्षा का स्तर बढ़ाने की एक प्रमुख तकनीक शिक्षक प्रशिक्षण है। दूरदराज के स्थानों में शिक्षकों के पास अक्सर प्रशिक्षण और अनुभव की कमी होती है, जिसके परिणामस्वरूप निम्न स्तर की शिक्षा मिलती है। शिक्षक अपने ज्ञान और शिक्षण क्षमताओं को आगे बढ़ाने के लिए नियमित प्रशिक्षण सत्रों से लाभ उठा सकते हैं, जिससे छात्रों के सीखने में वृद्धि होगी।

4.सांस्कृतिक और सामाजिक कारक: सांस्कृतिक और सामाजिक कारक ग्रामीण और दूरदराज के क्षेत्रों में शैक्षिक परिदृश्य को आकार देने में महत्वपूर्ण भूमिका निभाते हैं। ये कारक न केवल शिक्षा कैसे प्रदान की जाती है, बल्कि इस पर भी प्रभाव डालते हैं कि छात्र कैसे सीखते हैं, अपने समुदायों के साथ कैसे जुड़ते हैं और अपनी स्वयं की पहचान कैसे समझते हैं। शिक्षकों को स्थानीय रीति-रिवाजों के प्रति संवेदनशील होना चाहिए और उन्हें शैक्षिक अनुभव में शामिल करना चाहिए।

5.स्वास्थ्य देखभाल और बुनियादी सेवाए: स्वास्थ्य देखभाल और बुनियादी सेवाओं तक पहुंच भलाई और विकास के महत्वपूर्ण पहलू हैं, खासकर दूरदराज और ग्रामीण क्षेत्रों में जहां बुनियादी ढांचे, भूगोल और संसाधनों से संबंधित चुनौतियां इन सेवाओं की उपलब्धता और गुणवत्ता पर महत्वपूर्ण प्रभाव डाल सकती हैं। दूरदराज के इलाकों में अक्सर कठिन इलाके, सीमित सड़क पहुंच और समुदायों और स्वास्थ्य सुविधाओं के बीच लंबी दूरी होती है।स्वच्छता, बीमारी की रोकथाम और स्वस्थ जीवन शैली के बारे में जागरूकता बढ़ाने के लिए समुदाय-आधारित स्वास्थ्य शिक्षा पहल महत्वपूर्ण हैं।

6.डिजिटल साक्षरता और शैक्षिक चुनौतियाँ: बाधाएँ जो उच्च-गुणवत्ता वाली शिक्षा और डिजिटल प्रौद्योगिकी के लाभों तक पहुँच को रोक सकती हैं, उनमें ग्रामीण स्थानों में डिजिटल साक्षरता और शैक्षिक चुनौतियाँ शामिल हैं। शिक्षकों और छात्रों के पास डिजिटल प्रौद्योगिकियों का उपयोग करने,

ऑनलाइन संसाधनों तक पहुंचने और सामग्री का आलोचनात्मक मूल्यांकन करने के लिए आवश्यक डिजिटल साक्षरता कौशल नहीं है।

7.शिक्षक-छात्र अनुपात: राज्य, क्षेत्र, शिक्षा की डिग्री और सुदूर क्षेत्र के विशेष स्थान के आधार पर, भारत के ग्रामीण क्षेत्रों में शिक्षक-छात्र अनुपात बहुत भिन्न हो सकता है। हालाँकि, अधिक महानगरीय या भारी आबादी वाले स्थानों की तुलना में, दूर-दराज के क्षेत्रों में आमतौर पर शिक्षक-छात्र अनुपात अधिक होता है। यह अक्सर प्रशिक्षकों को नियुक्त करने और बनाए रखने में कठिनाइयों के साथ-साथ पर्याप्त सुविधाओं और संसाधनों की कमी के कारण होता है।शिक्षा के अधिकार के अनुसार, शिक्षक-छात्र अनुपात कुछ गंभीर रूप से दूर और वंचित स्थानों में राष्ट्रीय औसत से बहुत अधिक होता है|

8.लैंगिक असमानताएं: सामाजिक चुनौतियों, सांस्कृतिक मानदंडों, आर्थिक चिंताओं, प्रतिबंधित संसाधन उपलब्धता और सांस्कृतिक मानकों के संगम के कारण, शहरी क्षेत्रों की तुलना में दूरदराज और ग्रामीण क्षेत्रों में लैंगिक असमानताएं अक्सर अधिक गंभीर होती हैं। इन मतभेदों के परिणामस्वरूप शिक्षा, स्वास्थ्य, रोजगार की संभावनाएं और सामान्य कल्याण पर व्यापक प्रभाव पड़ सकता है। पारंपरिक लिंग भूमिका, कम उम्र में विवाह और स्कूलों की कमी सहित मुद्दों के कारण, दूर-दराज और ग्रामीण क्षेत्रों में लड़कियों और महिलाओं की शिक्षा तक सीमित पहुंच होती है।स्वास्थ्य सुविधाओं की कमी और लैंगिक पूर्वाग्रहों के कारण ग्रामीण क्षेत्रों में महिलाओं के लिए गुणवत्तापूर्ण स्वास्थ्य देखभाल की खराब पहुंच मातृ स्वास्थ्य पर प्रभाव डालती है।

आईसीटी में मानव सशक्तिकरण को नाटकीय रूप से बढ़ाने और विकास को बढ़ावा देने की क्षमता है। आईसीटी ने ज्ञान बनाने, साझा करने और स्थानांतरित करने के साथ-साथ विकास को बढ़ावा देने की हमारी क्षमता में उल्लेखनीय सुधार किया है।सूचना और संचार प्रौद्योगिकी (आईसीटी) भारत के ग्रामीण और दूर-दराज के क्षेत्रों में बदलाव लाने, कई सामाजिक-आर्थिक मुद्दों से निपटने और जीवन स्तर को ऊपर उठाने के लिए कई तरह के अवसर प्रस्तुत करती है। यहां कुछ महत्वपूर्ण संभावनाएं दी गई हैं:

1.डिजिटल संसाधन और सामग्री: डिजिटल संसाधनों और सामग्री का उपयोग शिक्षक अपनी पाठ योजनाओं को बढ़ाने के लिए कर सकते हैं। उदाहरणों में ई-पुस्तकें, ऑनलाइन लेख, फ़िल्में, सिमुलेशन और शैक्षिक ऐप्स शामिल हैं। सामग्री की यह विस्तृत विविधता छात्रों की रुचि बढ़ा सकती है और सीखने की विभिन्न प्राथमिकताओं को समायोजित कर सकती है।

2.ऑनलाइन शिक्षण प्लेटफ़ॉर्म: मूडल, कैनवस और Google क्लासरूम जैसी शिक्षण प्रबंधन प्रणालियाँ शिक्षकों को पाठ्यक्रम सामग्री, होमवर्क, परीक्षण के लिए एक केंद्रीय स्थान प्रदान करती हैं। छात्रों और प्रोफेसरों के बीच ऑनलाइन संसाधन और बातचीत दोनों उनके लिए उपलब्ध हैं।

3.मिश्रित शिक्षण: मिश्रित शिक्षण पारंपरिक आमने-सामने प्रशिक्षण के साथ ऑनलाइन घटकों को मिश्रित करता है। इस पद्धति के लचीलेपन के कारण, छात्र व्यक्तिगत और ऑनलाइन दोनों तरह से सामग्री और गतिविधियों के साथ बातचीत कर सकते हैं।

4.वैश्विक शिक्षा: छात्र आईसीटी के माध्यम से दुनिया भर के साथियों और विशेषज्ञों से जुड़ सकते हैं, जो सांस्कृतिक संवेदनशीलता और वैश्विक दृष्टिकोण को बढ़ावा देता है।

एक अच्छी तरह से डिज़ाइन किया गया पाठ्यक्रम जो शैक्षिक उद्देश्यों के अनुरूप हो, प्रौद्योगिकी तक पहुंच और शिक्षकों के लिए पर्याप्त प्रशिक्षण, शिक्षण और सीखने में आईसीटी को एकीकृत करने के लिए सभी आवश्यकताएं हैं। यदि सही ढंग से उपयोग किया जाए तो आईसीटी छात्रों की सहभागिता में सुधार कर सकता है, आलोचनात्मक सोच को बढ़ावा दे सकता है और उन्हें भविष्य की डिजिटल दुनिया की चुनौतियों के लिए तैयार कर सकता है।

Efficacy of Modern Technologies in the Learning and Educational System

Kailash Chouhan (Asst. Prof.)

Department of Chemistry, Govt. P. G. College Khargone (M.P.)

Annotation:

This article describes the use of information and communication technology in education. As we all know, employing information and communication technology in the educational process is one technique to boost learning motivation. Not only learners, but also educators, benefit from information and communication technology in the development of their creative individuals.

Keywords: ICT, modern technology, conversational skills, education, computers.

Introduction

Technology is crucial for economic expansion and has significantly impacted various fields, including education, making it essential for a technologically underdeveloped economy. It is now impossible to avoid infusing technology into education since it has become crucial to maintain society. Students get access to a wealth of internet-based materials because of modern technology, which also facilitates their educational pursuits. A large number of colleges and various other educational organizations are currently implementing technology into their teaching methods. Traditional teaching methods often lack focus on focused learning, critical thinking, and interaction, hindering learners' progress. Teachers are the sole source of information, and parents' involvement can be limited. This system can make learning boring and burdensome, as each student has a unique learning style and capacity, this technique may make learning tedious and demanding. Modern Technology contributes to address these sorts of problems.

Education and Modern Technologies

The advancement of smartphone technology has accelerated in the past couple of decades. Mobile technology can be used for business and academic purposes in addition to communication. ICT, such as television, computers, and the internet, greatly affects learning outcomes by enhancing the quality of education. These tools can improve students' creativity and problem-solving skills by making learning more applicable to real-life scenarios. ICT provides fresh opportunities to educate students about technology and science, such as time series measurements, databases, spreadsheets,

statistical programs, and tools for acting, envisioning, and simulating processes. With the incorporation of several devices, such as audiovisual projectors and presentations with PowerPoint, computers today have upgraded the quality of teaching and strengthened the process of learning. Students may grow impatient with conventional methods of teaching as they can be tedious and dull. However, computer technology renders education better, making the whole thing more enjoyable via entertainment, animated videos etc.

How Information Technology Affects Education

Information and communication technology encourage collaboration between students and teachers, supports global awareness, and promotes conversational skills, all of which increase access to education, improve relevance, and enhance quality. Research shows that students and teachers are interacting and collaborating more. ICTs provide more options for education, especially for rural areas, women who face social obstacles, and students with disabilities. ICT in educational activities facilitates lesson evaluation, lesson delivery, material preparation, and evaluation. Biology teachers can employ animations and simulations to improve student and teacher collaboration and communication. Utilizing ICTs effectively can aid in the timely dissemination of information and knowledge, teacher preparation, and supplement on-the-job teacher training while addressing traditionally excluded communities. Information and communication technology affect all areas of life, but it has a particularly strong impact on education. Information and communication technologies support learning, expand educational opportunities, facilitate it and can change the learning environment - all of which raise the level of education. ICT offers a wide range of educational opportunities. With the help of ICT, teachers can effectively and successfully reach a large audience. This will modernize and make institutions and teachers more dynamic. The use of information and communication technology ultimately improves students learning experiences. In a world where technology is advanced, it is conducive to building a successful career.

Importance of ICT in Education and Learning System

- ICT facilitates teacher-student interaction.
- It enables the efficient use of ICT software and hardware in the teaching and learning process.
- It facilitates in teaching skill improvement and innovative teaching.

- It enhances classroom performance.
- Current technology is being replaced by ICT. We all know how competitive students are today. In light of this, the teacher needs to be an expert in the field. Through ICT, this is possible.
- The outdated teaching strategies are eliminated, and teachers are trained to use more contemporary ones.

Conclusion

Technology-based teaching training programs strengthen teaching quality, but they must be well-designed to fulfill the demands of today's teachers. Identifying the elements that influence both the efficacy and cost-efficiency of ICT training methods is critical for developing successful and accessible training programs. ICT drives rapid changes in society, impacting education and student-teacher roles. ICT helps teachers update their knowledge and abilities in order to use new digital tools and resources. By using and learning about ICT, student teachers will become successful teachers. ICT plays a critical role in strengthening educational systems by raising motivation, drawing attention, and encouraging in-depth comprehension of subjects.

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Artificial Intelligence in Teaching and learning

Amika Birle[1], Ankit Birle[2]

[1]Govt. P. G. College, Khargone, Bistan Road, Khargone (M.P.) 451001
[2]Govt. P. S. Dongarchichali, Khargone (M.P.) 451001

Abstract:

Artificial Intelligence (AI) has the ability to address some of today's most pressing educational concerns, as well as to revolutionise teaching and learning practises and speed progress towards Growth. Rapid technological innovations, on the other hand, invariably carry with them a slew of hazards and concerns that have so far surpassed policy discussions and regulatory frameworks.

It seeks to broaden the discussion to include AI's role in resolving current disparities in access to information, research, and cultural expression variety, as well as to ensuring that AI does not heighten technical divisions within and between countries. The promise of "AI for all" must be that everyone may benefit from the ongoing technological transformation and access its benefits, particularly in terms of innovation and knowledge.[1]

In that paper we deal to create a shared understanding of the opportunities and challenges that AI offers for education, as well as its implications for the core competencies needed in the AI era.

Introduction:

AI is used for so many things but if we add that in education then it has a power to change the entire world in all the field because education is first step toward moulding of world into positive direction.

Key Insights:

AI enables new forms of interaction

Students and teachers can interact with a computing resource and one other by speaking, gesticulating, sketching, and using other natural human ways of communication. AI can also develop human-like answers. These new forms of action may help students with disabilities.

AI can help educators address variability in student learning

Designers can use AI to predict and handle the long tail of variances in how students can successfully learn, whereas traditional curricular materials were built to teach to the middle or most frequent learning paths.

AI supports powerful forms of adaptivity

Traditional technologies adjust based on the accuracy of student responses. AI permits responding to a student's learning process as it evolves step by step, rather than simply offering feedback on correct or incorrect responses. Specific modifications may allow students to continue making excellent progress in a programme by working with their strengths and overcoming difficulties.

AI can enhance feedback loops

AI can improve the quality and quantity of feedback given to students and teachers, as well as provide resources to help them improve their teaching and learning.

AI can support educators

Educators may be able to contribute to the development of AI-enabled technologies that will improve their professions and allow them to better engage and serve their students.

Advantages of Artificial Intelligence

1. Reduction in Human Error

One of the most notable advantages of artificial intelligence is that it may drastically reduce errors while increasing accuracy and precision. The judgements made by AI at each phase are determined by previously obtained information and a certain set of algorithms. When properly programmed, these errors can be eliminated.

2. Zero Risks

Another significant advantage of AI is that it allows people to avoid many dangers by delegating them to AI robots. Machines with metal bodies are resistant in nature and can survive adverse atmospheres, whether they are defusing a bomb, travelling to space, or exploring the deepest regions of the oceans. Furthermore, they can provide accurate work with higher responsibility.

3.Unbiased Decisions

Emotions drive us, whether we like it or not. AI, on the other hand, is emotionless and approachable. One significant advantage of artificial intelligence is that it is free of bias, resulting in more accurate decision-making.

4.Daily Applications

Our daily lives are now completely reliant on mobile devices and the internet. We use a number of apps, including Google Maps, Alexa, Siri, Cortana on Windows, OK Google, taking selfies, making calls, reacting to emails, and so on. We are able to predict today's weather and the days ahead using various AI-based methodologies.

5.Faster Decision-making

Another advantage of AI is faster decision-making. AI can help organisations make faster and more informed decisions by automating certain tasks and giving real-time insights. This is especially useful in high-stakes situations where judgements must be made fast and properly to avoid costly mistakes or save lives.

6.AI in Risky Situations

One of the main benefits of artificial intelligence is this. By creating an AI robot that can perform perilous tasks on our behalf, we can get beyond many of the dangerous restrictions that humans face. It can be utilized effectively in any type of natural or man-made calamity, whether it be going to Mars, defusing a bomb, exploring the deepest regions of the oceans, or mining for coal and oil.

Disadvantages of Artificial Intelligence

1. High Costs

As we know all technical setups need amount and for AIwe definitely needs a artificial brain to perform all task with proper sense that required powerful machines which is costly and also need proper installation and space as well so over all till time the cost AI workshops and systems are bit costly.

2. No Creativity

One significant shortcoming of AI is that it cannot learn to think outside the box. AI can learn over time using pre-fed data and past experiences, but it cannot be creative in its approach.

3. Unemployment

A robot is one application of artificial intelligence that is replacing jobs and increasing unemployment (in some circumstances). As a result, some argue that there is always the possibility of job loss as a result of chatbots and robots replacing humans.

Robots, for example, are widely used to replace human resources in industrial enterprises in more technologically advanced countries such as Japan. However, this is not always the case, as it gives more chances for humans to work while also replacing humans to boost efficiency.

4. Make Humans Lazy

Since physical and mental work is required now a days to get fit and fine for all humans, but AI does all the work mechanically, and human nature is to adopt all relaxing things easily on one go for tough way if easy way is available, AI creates laziness in humans to perform any physical task.

5. No Ethics

Ethics and morals are important human characteristics that can be difficult to put into an AI. The rapid advancement of AI has prompted a lot of concerns that it could one day develop uncontrollably and finally wipe out humans. This is known as the AI singularity.

6. Emotionless

We have been taught since childhood that neither computers nor other machines have feelings. Humans work as a team, and effective team management is critical to attaining goals. There is no denying that robots outperform humans when used properly, but it is also true that human connections, which form the foundation of teams, cannot be replaced by computers.

7. No Improvement

Humans cannot create artificial intelligence since it is a technology built on pre-loaded facts and experience. AI is capable of repeating the same work, but any changes or improvements must be made manually. AI cannot be accessed or used in the same way that human intellect can, but it can store a limitless amount of data.

Machines can only execute tasks for which they were designed or programmed; if they are expected to do anything else, they typically fail or produce ineffective results, which can have serious consequences. As a result, we are unable to create anything conventional.

Conclusion

There are many advantages and disadvantages to artificial intelligence in education. We've covered some of the pros and cons here, but there is much more to learn about this topic.

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Time to Rethink: Education through Technology

Dr. Tabassum Patel[1], Mr. Jenuluddin Sheikh Jilani[2]

[1]Asst. Professor Commerce, Govt. Girls PG College, Ratlam

[2] Asst. Professor Commerce, Govt. PG College, Khargone

Abstract:

The period of 21st century is many times viewed as the time of innovation. Today, technology is an integral part of our lives. Conceivable just through innovation distances are no more boundaries and training can be brought to the understudy's doorstep. The effect of innovation can be felt in each conceivable field and one such field is training. Schooling in its general sense is a type of learning wherein the information, abilities and propensities from a gathering are changed from one age to next through educating, preparing and research. Today, like never before, the job of instructive innovation in educating is vital in view of the utilization of Information & Communication Technology (ICT). Instructive innovation is a coordinated course of applying current innovation to work on the nature of schooling. It is a methodical approach to conceptualizing, carrying out, and evaluating the educational process, also known as learning and teaching, and it aids in the application of contemporary educational teaching methods. The paper is a calculated endeavor to investigate the new jobs of innovation in training which has progressively become in excess of a sole medium, just like its portrayal before.

Keywords: Education, technology, teaching, ICT

Introduction:

On the planet that we presently live in, innovation is a crucial variable. As time passes another product or device is being brought into the market that effectively works on our lives somehow. Innovation assumes a significant part in each field and one such field where its presence is most extreme is in training area. With the headway in innovation, schooling among individuals has started to multiply and there is ceaseless innovative work happening in acquainting cutting edge innovations with make training more straightforward, happy and open. These days with the assistance of innovation the schooling for kids is done exhausting and bulky as the instructive advances have made it considerably more intriguing and simpler to utilize.

Study while playing has been made conceivable simply by the new innovation. Distance schooling is an incredible guide to understudies who couldn't seek after their certifications. Presently because of quick change in innovation, distance is no more obstruction.

Educational technology usage is broadly classified as:

1. Technology as a tutor

2. Technology as a Teaching tool

3. Technology as a learning tool

Comparison Of Traditional Education and Modern Education

Traditional and Modern education are both connected with one another and furthermore unique in relation to one another. In fact, traditional education is the foundation for modern education. There were no child-care facilities or schools in the past. They received their education or knowledge from their gurus, who primarily focused on rituals or customs, in gurukuls. As opposed to this advanced instruction centers around perusing, composing, number-crunching and religion. Modern education was able to take the place of indigenous education thanks to the development of new technologies.

Need Of Technology in The Classroom:

•It will assist understudies with getting ready for their future professions, which will incorporate the utilization of remote innovation.

•The joining of innovation into the study hall is an extraordinary method for arriving at the variety in learning styles.

• By encouraging collaboration, it gives students a chance to interact with their classmates more.

•Innovation assists the educators with planning understudies for this present reality climate.

•Coordinating innovation in schooling assists understudies with accepting keen on advancing as they are amped up for having the option to utilize innovation and subsequently are more well-suited to learn.

•Versatile innovation is accessible in the homeroom; understudies can get to the most exceptional data speedier and simpler than at any other time.

•The customary detached learning mold is broken with innovation in the study hall the educator turns into the encourager, counselor, and the mentor.

• Students can have access to digital textbooks that are constantly updated, frequently more vivid, helpful, and creative than old, bulky textbooks, and significantly less expensive.

Role Of Information and Communication Technology (ICT)

Information and communication technology (ICT) is a boom for students todayas it affects understudy accomplishment. ICT fundamentally incorporates TV, PCs, web and so forth. when utilized properly it can reinforce, grow and raise nature of training. The use of computers and the internet to make education more relevant to everyday life has been viewed as ideal by educational establishments. The residents of tomorrow who are our understudies currently are going to live in the age of the electronic media. Students' ability to think creatively and solve problems can be enhanced by ICT.

Notwithstanding, ICT additionally gives new devices that can be utilized in showing science and innovation. The entire scope of regular programming is utilized, including data sets, calculation sheets, measurable and graphical projects. Also, demonstrating, representation and the recreation of cycles are significant. ICT is likewise utilized for taking time series of estimations of a wide assortment of boundaries ('information logging').

Science and innovation are probably going to be key components of methodologies to foster ICT as an asset for advancing educating and learning. Even though they will likely need to have their skills updated through appropriate training programs, science and technology teachers are likely to be better equipped than many of their colleagues for this task due to their training.

Advantages of Technology in Education:

Easily access to learning material: - E-books, revision guides and past examination papers that are available on World Wide Web and students can take advantages of these to improve knowledge base.

Continuous learning: - With the help of information technology in education it is possible for students to keep on learning, irrespective of where they are even at home. This has greatly enhanced efficiency in the education sector.

Sharing of knowledge: - Students from all over the world can come together and can share the experiences; the geographical distances are no more barriers, it has been made possible only through technology.

Learning aids: - By using audio and visual materials, we can put some practical aspect to the theory taught in class, students can develop a better understanding of topics being taught.

Distance learning: - Now its possible to attend a college overseas without even getting out of your home country and at your own convenience. With the help of online courses anyone can get the second degrees or additional certifications.

Proper record keeping: - Unlike in the past when records used to be kept manually and there were many cases of lost files, the use of information technology in education has made it possible for safe and proper record keeping.

Limitations of Technology in Education:

Access to inappropriate content: The biggest concern to the use of technology is that how easy pornographic, violent, and other inappropriate materials can be easily accessed and viewed.

A disconnected Youth: The harmful effect of technology is that when people are attached to their screens almost 24/7, which is causing an entirely new set of social issues to pop up.

Cyber bullying Trap: Giving students access to anonymous accounts and endless contact

avenues can only lead to trouble. Cyber bullying has become a problem among young people today. This harassment has no end. There is no way to monitor or discipline students who are involved in it.

Inevitable Cheating: Easy access to information may seem like a great thing, it can become a real problem in a test taking environment. Cell phone have made cheating easier than ever.

A major Distraction: Attentiveness drops drastically in the classroom when students have their cell phones or other technologies out. The focus shifts from their teacher and education, to whatever they are looking at, playing, or doing on their phones.

Conclusion:

With innovation, instruction has taken an entirely different implying that it leaves us with most likely that our schooling system has been changed inferable from the consistently propelling innovation. We can now prepare students for lifelong learning, which necessitates innovative educational strategies that incorporate technologies into students' daily lives. It is common knowledge that a comprehensive education is a key to personal success. It shows understudies a way to long lasting discovering that empowers them to prevail in truly impacting world. Through schooling, people can grow their psyches and embrace groundbreaking thoughts and valuable open doors, and simultaneously, assemble better lives for them as well as their networks. In reality as we know it where geographic limits are obscuring, understudies additionally need the adaptability to interface with and team up with individuals anyplace whenever — conveying data in additional dynamic, drawing in manners. What's more, it is important to consider the effect schooling plays in cutthroat economies, where when neighborhood ventures presently contend on a worldwide scale.

Notwithstanding, ICT likewise gives new apparatuses that can be utilized in showing science and innovation. The entire scope of regular programming is utilized, including data sets, calculation sheets, measurable and graphical projects. Also, demonstrating, representation and the recreation of cycles are significant. ICT is likewise utilized for taking time series of estimations of a wide assortment of boundaries ('information logging').
Science and innovation are probably going to be key components of methodologies to foster ICT

as an asset for advancing educating and learning. Even though they will likely need to have their skills updated through appropriate training programs, science and technology teachers are likely to be better equipped than many of their colleagues for this task due to their training.

For the present understudies to turn out to be the upcoming innovators in science, innovation, medical services, human expression, and different regions, they - need to know how to utilize every one of the devices available to them. It is an interesting opportunity to train and we should immediately jump all over this opportunity to challenge ourselves, our understudies, our chairman and policymakers all through the country to assist all educators with utilizing the innovation apparatuses accessible to them.

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टीचिंग और लर्निंग मे टेक्नॉलजी का प्रयोग

संतोष कुमार राठौड़
(सहायक प्राध्यापक भौतिक-शास्त्र),
शासकीय स्नातकोत्तर महाविद्यालय खरगोन (म.प्र.)

टेक्नॉलजी ने शिक्षा को पेन और पेपर कि दुनिया से आगे पहुँच दिया है । टेक्नॉलजी एक डिजिटल मंच है जो हमारी शिक्षा को तकनीकी से जोड़ता है, और हमारी जरूरतों के हिसाब से काम करता है । स्कूल स्मार्ट कक्षाओं के नए टैग के साथ चल रहे हैं, और ये स्मार्ट कक्षाएं टेक्नॉलजी का सबसे बेहतरीन उदाहरण है । पुराने समय मे किसी विद्यार्थी को किसी विषय पर कोई समस्या होती थी तो वो अपने शिक्षक से पूछता था, लेकिन आज विद्यार्थी को शिक्षक के अलावा बहुत से अनलाइन मंच उपलब्ध है जहां से वह आसानी से किसी समस्या का समाधान बेहतर तरीके से तुरंत प्राप्त कर सकता है ।

टेक्नॉलजी ने शिक्षा को आसान बनाने के साथ-साथ रोचक भी बना दिया है । स्मार्ट कक्षाओं के साथ-साथ बहुत से सॉफ्टवेयर भी उपलब्ध है जो हमे अपडेट रखते हैं और नीत नई चीजें सीखने मे मदद करते है । कुछ उपकरणों के नाम जो तकनीकी से विद्यार्थियों और शिक्षकों को जोड़ने महत्वपूर्ण कड़ी है -

लैपटॉप - यह बेहतरीन पोर्टेबल इलेक्ट्रॉनिक डिवाइस है जिसे कहीं भी अपने साथ ले जाया जा सकता है । इसे दृश्य-श्रवण, पठन-पाठन और किसी भी स्थान से internet के माध्यम से पूरे विश्व से जुड़ा जा सकता है।

स्मार्ट फोन - ये लेपटॉप का छोटा संस्करण है, प्ले स्टोर के माध्यम से जरूरी अपलिकाटीऑन डाउनलोड करके कहीं भी access किया जा सकता है ।

इलेक्ट्रॉनिक पेन रीडर - यह इलेक्ट्रॉनिक युक्ति है जिससे किताबों मे लिखे हुए शब्दों-वाक्यों को सुना जा सकता है ।

किन्डल - यह पुस्तकों को एक्सेस करने का अनलाइन स्त्रोत है, जहां पुस्तकें आधी कीमत पर उपलब्ध है। यह कागज के उत्पादन को काम करता है और पर्यावरण संरक्षण मे सहयोगी है ।

एक केस स्टडी के माध्यम से मै बताना चाहूँगा कि किस प्रकार टेक्नॉलजी (यू ट्यूब) के द्वारा से पठन-पाठन आसान हुआ है ।

कक्षा - 11 वीं (एनसीईआरटी)

विषय - भौतिक शास्त्र

यूनिट - 1

चूंकि भौतिक विज्ञान सबसे रोचक एवं सबसे कठिन विषय माना जाता है, और भौतिक शास्त्र का विद्यार्थी होने से मै इसे समझ सकता हूँ ।आज समय मे टेक्नॉलजी के माध्यम से लेचीनग एवं लर्निंग को बेहतर बनाया जा सकता है । इसी प्रकार के विषय पर आज हम कक्ष 11 वीं के भौतिक विज्ञान के प्रारम्भिक अध्यायों के बारे मे चर्चा करें

तो समस्या यूनिट 1 (मात्रक एवं मापन) से ही प्रारंभ होती है ।

हर किसी को और खासकर प्राणी विज्ञान के छात्रों को यह विषय बड़ा ही कठिन लगता है । इसे और कठिन बनाती है कक्षा 11 वीं की यूनिट नंबर 1 (मात्रक एवं मापन) । यूनिट 1 के सब टोपिक्स अगर मै बताऊ तो वे इस प्रकार है -

1.1 मात्रक एवं मापन

2.2 मात्रकों कि अंतर्राष्ट्रीय प्रणाली

2.3 सार्थक अंक

2.4 भौतिक राशियों की विमाएं

2.5 विमीय सूत्र एवं विमीय समीकरण

2.6 विमीय विश्लेषण एवं इसेक अनुप्रयोग

उपरोक्त टोपिक्स को अगर कक्ष 11 वीं के भौतिक शास्त्र से पढ़ जाए तो ये बोरिंग लगेंगे। यदि कोई अच्छा शिक्षक पढ़ाए तो ये आसानी से समझ मे या जाएंगे। लेकिन हमारे देश मे खासकर भौतिक-शास्त्र को पढ़ाने वाले अच्छे शिक्षकों की कमी है। अच्छे शिक्षक सभी दूर उपलब्ध नहीं है । इसी तारतम्य मे ऊपर दिए गए टोपिक्स पर आप क्लिक करेंगे तो आप संबंधित विषय को यू ट्यूब के माध्यम से और आसानी से समझ सकते है।

एेसे मे टेक्नॉलजी के माध्यम से इस समस्या को आसानी से दूर किया जा सकता है । टेक्नॉलजी के माध्यम से ऊपर दिए गए टोपिक्स को किताब मे उपलब्ध मटीरीअल से भी अच्छा मटीरीअल है । अच्छे शिक्षकों की कमी से जूझते हमारे देश मे टेक्नॉलजी ने कुछ हद तक उनकी कमी को दूर किया है ।

शिक्षा के क्षेत्र मे ज्यादातर प्राइवेट संस्थाएं नई नई टेक्नॉलजी को प्रतिस्परधात्मक रूप से स्वीकार कर रहो है एवं अपनी संस्थाओं मे इन्हे संचालित भी कर रहो है । लेकिन हमारे प्रदेश मे अच्छे शिक्षकों की खासकर सरकारी स्कूलों मे, कमी है, यदि प्रत्येक सरकारी स्कूल मे यदि संभव हो सके तो प्रत्येक कक्ष मे एक-एक स्मार्ट लगाकर एवं वहाँ के शिक्षकों को संचालन कि उचित ट्रैनिंग देकर, शिक्षकों कि कमी को बहुत हद तक दूर किया जा सकता है ।

हाल ही मे शिक्षा के क्षेत्र के लिए AI application विकसित किए गए है। छात्र बिना किसी रुकावट के अनलाइन कॉर्सेस मे शामिल हो सकते है और कंप्युटर लेपटॉप और स्मार्टफोन आदि उपकरणों के माध्यम से बिना किसी रुकावट के एजुकेशनल कंटेन्ट तक आसानी से पहुँच सकते है, ताकि छात्र आसानी से फिज़िकल क्लाससेस मे शामिल हो सके और नया ही इंटरनेट कनेक्शन की आवश्यकता पड़े। बहुत से ऑटमैशन टास्क भी ai द्वारा पूर्ण के जाते है जो प्रक्रिया को आसान बनाते है और समय और धन कि बचत करतें है ।

एजुकेशन चैटबॉक्स 24*7 उपलब्ध होते हैजो छात्रों के प्रवेश, फीस, सब्जेक्ट, क्लाससेस, टीचर्स आदि से संबंधित समस्याओं को हाल करने मे मदद करता है। AI के माध्यम से अब

स्टूडेंट्स न सिर्फ सवालों के पर्सोनेलाइसड जावब पा सकते है बल्कि किसी प्रोफेसर या टीचर से कभी भी संपर्क कर सकते है ।

AI और हुमन प्राक्टर के संयोजन से किसी भी संदिग्ध गतिविधि को चिन्हित करने या रिपोर्ट किया जा सकता है। यह उम्मीदवार पर नजर रखता है, यह आवाज पता लगाकर परीक्षार्थी के अलावा किसी अन्य व्यक्ति का पता लगाकर शिक्षणिक संस्थानों कि मदद कर सकता है । AI के माध्यम से परिक्षरथी के कंप्युटर के स्क्रीन को फ्रीज किया जा सकता है जो परीक्षार्थी को किसी अन्य टैब खोलने से रोकता है ।

शिक्षा मे टेक्नॉलजी का प्रयोग हमारी शिक्षा व्यवस्था मे बहुत ज्यादा बदलाव लाया है, एक तरफ यह छात्रों के अध्ययन को प्रोत्साहित करता है दूसरी ओर यह छात्रों और शिक्षकों को भी हर क्षण विश्व आए हुए और आने वाले बदलवों से अपडेट रखता है । टेक्नॉलजी हमें नई नई चीजें सिखाती है और नए विचारों को विकसित करने मे हमारी मदद करती है । लेकिन कुछ अच्छी चीजों के साथ बुरी चीजें भी जुड़ी होती है, बच्चे आसानी से गलत संगत मे पड़कर अपना भविष्य खराब कर सकते है । कुछ एप जिनके लत से हमारे बच्चों कि जाने तक गई है । हमे ऐसी बुरी चीजों से हमारे बच्चों को बचना होगा, उनपर नजर रखनी होगी ताकि वे टेक्नॉलजी से अच्छी चीजें सीखे ।

Embracing Digital Technology: Classroom and Research Field

Dr. Sandhya Batwe

Department of Zoology

Govt. P.G. College Khargone

Abstract

Educational technology is a dynamic, evolving field and as such, in identifying and mapping research patterns in this field, a systematic approach is required. Starting from when the World Wide Web became publicly available, this study conducts a systematic review of educational technology research patterns. The review showed that after 1993, there was a sudden increase in the number of educational technology publications, and that in terms of subject areas, social sciences dominate the field, which suggests that there is a need for more interdisciplinary research technology use in the classroom has always been viewed by educators and additional burden, an extracurricular thing they must learn to be effective teachers and teach it to students. Today teachers (most) at least cannot function without one piece of equipment or the other even if they don't like it, students' needs and level of exposure to technology, global market requirement, and instructional benefits have motivated teachers in schools, colleges, and policymakers to implement technology in most schools in the United States. The use of technology in the classroom allows teachers to make a smooth shift into individualized instruction but not all teachers and students feel this way. This article will explore if technology is actually a great learning tool or a hindrance/drag to teachers and learners.

Keywords: Technology, education, classroom technology

Introduction

The first computer developed with the help of universities was the vacuum tube-based computer in 1946 to help the military during the war. Then Russia launched a spacecraft (Sputnik) during the cold war and the United States under President Eisenhower and the race for technological advancement began fully. The interest

in technology and the zeal to compete with Russia led to the National Defense Education Act (NDEA) which money and new technology into the classroom except it was mainly for vocational school students (Murdock,2007). The *race for space* and the cold war generated enormous public support for the development of technology but it was mainly geared towards space exploration.

The 1960s saw a rise in computer use by companies and the introduction of programming languages like COBOL, Fortran, BASIC, and the Vocational Education Act which provided funds for the use of technology

in school for universities to train programmers, computer maintenance and engineers using mainframe computers. Then in the early 1970s, Intel developed its first microprocessor which ushered in the first microcomputers and a few software for basic instructional programs, but mainframes and minicomputer users were not ready to change even after Apple 1 Personal Computer(PC) were developed and donated to schools until 1979 when there was an estimated 15 million PC users worldwide (Murdock, 2007).1986, 31 states use 13,000 PCs for career development and 25% of high schools started using PCs for college and career guidance using mostly Apple II, Apple Macintosh and IBM PC. When I came to this country in 1990, just in time for the introduction of Multimedia PCs, videodisc, databases, authoring and graphic software to colleges, most computers had not enough hard drive space to install the software so programs were delivered and ran on CD-ROM disks or 31/2" disk drives. I was still amazed by computers because I heard about it but never saw one before I arrived at my academic advisor's office in September 1990 and decided to change my course from a master's degree in Educational Psychology to a bachelor's in computer science. How times have changes and I now feel like I am back where I was supposed to be in education but better technologically prepared. I was lucky to be at the foundation of what was regarded as a technology explosion in this country. Even though there was an increase in the use of technology worldwide and its popularity in schools and US classrooms had increased, most teachers do not have access to computers and those who had access will rather send their students into the designated computer laboratory for training. Between 1997 and 2007, technology growth in use, availability and access was extraordinary and the internet led to faster expansion with the use of large database of information, graphics-interfaced computers, streaming videos and laptop computers making technology a valuable resource for education and educators. Relating to Dewey (1916), whose ideas are originally inspired from Plato's notions on knowledge and skills of artists and craftsmen, Oliver (2013) and Jin (2011) highlight the social and material aspects of technology. Expanding these views, Friesen (2009) characterizes hard technologies with material or technical aspects, while Oliver (2013) characterizes interpretation or meaning with soft technologies. Based on the above thoughts, it can be argued that educational technology can be classified under two broad categories: soft technologies (programs, design principles, approaches, conceptual frameworks, theories, etc.) and hard technologies (pen, paper, printing machines, computers etc.). Arguably, one of the first soft educational technologies would be the invention of

language and alphabets, while in the case of the hard educational technologies, it would be pen and paper. Every invention, whether primitive or modern, triggers some degree of socio-economic change, and some of the educational technologies, such as language, alphabet, pen, paper, the printing machine, in fact, stand as milestones in the history of educational technology.

In many cases, the technologies that have been created tend to be first adored but then feared. At a time of such critical discussions and diverse thoughts about the role of technology, it is believed that exploring educational technology research patterns could help provide insight into better understanding the role of technology, taking a critical position towards it, developing strategies, and making decisions. In light of these thoughts, the main purpose of this study is to identify educational research technology research patterns in the realm of the digital knowledge age.

Use of technology in the classroom

One looks around and you cannot but appreciate the growth of technology use in and out of the classrooms today. The teachers though overwhelmed with teaching and other duties have to learn how to use technology to augment the teaching and learning process in their classroom. The early introduction of technology to schools and classrooms met with opposition, resistance, fear, and lack of confidence in their ability to integrate it into their subject areas. Technology cannot be successfully implemented in a classroom without the teachers' competence and ability to use instructional technology activity series to meet students' needs at all levels. Teachers have realized that once set up properly technology is actually a time saver, not a consumer. With funding from the federal government in their technology initiatives, the burden to provide this equipment is not with the school thus less financial stress on the school district. The use of technology in the classroom allows teachers to make a smooth shift into individualized instruction and concentrate on the developmentally appropriate use of technology for different ages and material content (Aldridge & Goldman, 2007). Even though at the beginning it looked like more work, “technology affords us the ability to convey concepts in new ways that would otherwise not be possible, efficient, or effective with other instructional methods” (Klopfer, Osterweil, Groff & Haas, 2009. p.4).

Purpose of the Research

According to Webster and Watson (2002), “an effective review creates a firm foundation for advancing knowledge. It facilitates theory development, closes areas where a plethora of research exists, and uncovers areas where research is needed” (p. xiii). Similarly, Weller (2020) argues that EdTech has a shared history and we need to “learn from and remember its history” (p. 189).

Sharing the same thoughts, the main purpose of this research is to explore and examine educational research patterns in the digital knowledge age by conducting a systematic review study. In this regard, the research intends to seek answers to the following research questions. What are the educational research patterns; in time trend, subject areas, and geographical distribution of the articles, in lexical findings explored through text mining, in keywords revealed through social network analysis?

Technology as a tool

In Klopfer, Osterweil, Groff and Haas's (2009) recent study they examined the educational use of popular media that children K-12 are already familiar with took the time out to understand the use of medias like Facebook, tweeter, myspace and games like Sim City. They feel the educational value of these technologies in the lives of our children, their growth and usefulness as they graduate into society to work in industries cannot be overemphasized. The cognitive implications of these technologies in enhancing students' social network and data management skills is interesting; despite the unique challenges that accompany the use of these tools in the classroom, Klopfer etal (2009) discussed some strategies for overcoming these challenges to achieve successful learning experiences for both the teacher and students. These technologies offer opportunities to improve or positively impact teaching and learning in and beyond the classroom.

• Ability to multitask: because these children are already game technology experts by the time they are 8 years old, it is easier for the teacher to build on what they already know. Leveraging the students' prior knowledge and academic required understanding.

•Independence for students to learn at their pace. Technology encourages individualized instruction and can actually help the proper implementations of No Child Left Behind.

•Affordable online education – increased number of Americans with degrees than ever in history because of the idea of education anywhere which University of Phoenix is at the forefront of making educational achievement and aspirations available globally through virtual learning environment.

•Increased student's knowledge of the world around them. The internet has created a global village where one culture is not so strange and most locations in the world are as far as Google earth.

• Instructional technology allows both the teachers and students to do activities that would have otherwise been impossible. (Postholm, 2007)

• Technology makes research and collaboration possible among higher institution scholars.

• Technology in the classroom has made it possible and convenient for students like me to sit in their home and get a degree.

• Increased multicultural awareness. Technology improves the teachers' ability to teach "authentic version of multicultural education" (Munoz, 2002) with the use of technology will generally depend on the teacher's preparation in the instruction of multicultural education.

• Familiarity and exposure to various educational gaming devices can help the student process multiple information quickly; ability to determine what is important or relevant; process parallel information and have the capacity to experiment with new things.

Recommendation

Teacher training is very important and since the government has vested interest it cannot be ignored. According to the National Assessment of Educational Progress (NAEP, 2009), "Science is a priority under the No Child Left Behind Act (NCLB). Under the provisions of the Act, states receiving Title 1 funding must develop academic content standards in science by 2005-06 and implement aligned assessments based on those standards by 2007-2008" (p.4), but their findings showed that only 10% of fourth and eighth graders were in a class where the teachers actually use technology to enhance teaching in their classroom at least once a week making it impossible to teach the students. "We need to set up networks whereby teachers and researchers may work together to design and evaluate projects which use ICT as a tool for learning. If these resources are made available, teachers will start to embed ICT into classroom practices," emphasized Professor Sutherland (Postholm, 2007).

Conclusion

There is a need to understand if technology in classrooms does improve student achievement or not. Use of technology in the classroom, depending on how and the extent to which it is used draws on a little bit of many educational theories. One of the theories I noticed first is the observational learning theory or the social theory. These theorists believe that an observer's behaviour will change after viewing the behaviour of others. In today technology, the students learn all kinds of technology just by watching their peers. Technology in the classroom definitely continues what the students already know and use at home already.

Another is the behavioural learning theory of BF Skinner based on the methods of branching: dividing into small units which is made possible with technology in the classrooms. The idea to fully implement technology in the classroom permeates the core of teaching and test-established

ideas of educational theorists who advocate human interaction as critical to learning, even though this idea have proven to be false by the introduction of new interactive media forms (Munoz, 2002).

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Impact of Modern Technology in the field of Education System

Dr. Sunaina Chouhan

Assistant Professor
Govt. P.G.College, Khargone M.P.

We are living in a modern era of modern globalization. In this modernization, we are using modern technology, and this modern technology has a great impact on our lives. Today, modern technology is used by each member of our society, in this day's people are getting more addicted and dependent on the usage of advanced technology while doing their daily work. modern Technology has recently changed the way of education and we learned many more tools in education. This has a positive impact on the field of education. Technology has impacted almost everywhere and everyone's life, and if we talk about education, then there is no exception.so The era of the 21st century is often regarded as an era of MODERN TECHNOLOGY.

The use of tools of techniques in education is more informative, easy to access and gathers information in any field for knowledge. Because of technology, nowadays in the education field children and students are exploring new creative ideas in their learning methods. It is useful in their entire development and the way of thinking level for new things are also changed.

After COVID- 19, modern technology has changed the role of teachers and learners. The new adventure of technology in the education field has made the process of learning and knowledge sharing more interesting. The greatest impact of modern technology on education is the change in our outlook towards the world. The conspicuous move of our thinking from local to global can be attributed to technology. So that's why we are focusing present situation of education with these new ideas, that can be helpful for the next generation, and they can cope with that and sustain education with technology.

Due to modern technology, classrooms are more digitalized with smart boards and well equipped. Today, a common person can gather a number of information like books, audio, video, any images, etc. at one fingertip through the internet and much more learning information's can access easily which are available by online mode. Because of this technology, in the field of education, we are taking webinars, development programs, awareness programs, and other online information from all over the county. This is only done by the educator with the help of new techniques for all learners.

Important role of Modern Technology and tools on Education

the role of modern tools and technology in education system is very crucial, these are as follows:

1. Providing students useful knowledge (teaching and learning)
2. Technology as a tool to support teaching and learning process
3. Technology has made students' lives easy and fast
4. Easy to store information and knowledge
5. Digital classrooms and seminar hall
6. Sharing and learning
7. Technology has removed space and time limitations
8. Online degrees with the use of technology

Factors Affecting Technology in Education system:

There are tremendous challenges in the education field and teachers are facing barriers due to the rapid expansion of knowledge. Modern technologies are requiring a lot of skill, so teachers should learn how to use these technologies in their teaching methods. Hence these technologies increase the teacher's training needs.

Impact of ICT on Education:

Information and Communication Technologies (ICT) can impact student learning when teachers are digitally literate and trained on how to use these tools in the curriculum.

There are the following benefits of ICT in education:

- Active learning
- Creative learning
- Integrative learning
- Evaluative learning
- Collaboration and Cooperative learning

Positive and Negative Impact of modern technology

In today's education, students are using different kinds of technological devices in learning for study purposes. With the help of modern technology, the learning power and thinking level of

students is increasing day by day because of excess use of new tools and it will get much more information for the related context and updated one. They are using laptops, computers, tablets, and smart mobile phones for study and learning purposes. As we know that coins consist of two sides, now it's time to discuss the second side of the coin is the Negative impact of Modern Technology on Education.

Nowadays, students are dependent on technology like they forget how to read, write a sentence or even they cannot calculate a simple number, they try to use the gadget for it and do not use their minds for a simple calculation. That is showing how much they are dependent on technology. Modern technology wastes the precious time of the students like they are busy with playing games, watching movies, video songs and many more things they are doing, so it decreases the study interest and learning of the students.

As technology is more useful for studying and effective learning, it also distracts the students from the study and involves them in other kinds of activities. I am not saying that modern technology is not beneficial in education for the students, but also students should be aware of how to use these technologies in their life. If the technology is implemented in a good way, then it will be more beneficial in the field of education. It depends on us, how we use technology and how we allow our students to use it.

Technology has heavily impacted almost every aspect of our lives, and education is no exception .in the technological era, the classrooms transformed from teachers centered to student centered. This came as a result of wanting to focus more on the students. A student -centered classroom means that the learning responsibility is put on the student with the intention of getting them out of the shell and teaching to became independent. Through many technological tools that teachers have at their disposal, they try to make the learning process fun, interactive and informational for students by engaging them and giving a sense of independence. technology has not only changed the way teachers deliver their lessons and how students learn; it has made education in general more accessible to millions of students through online classes and online resources. technology creates a more engaging learning environment.it improve collaboration and incorporates different learning styles. It also boosts motivation and allows students to self -pace. technology will continue to change the way we teach we teach and the way students approach the learning process in the years to come, and it's important to know which technologies will make the biggest impact.

The tech we talked about today will enable teachers and students to thrive and reach new heights of success in their respective fields and drive modern teaching and learning.

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Inclusive Education through Technology

Dr. Tushar Jadhav

Department of English, Government P.G. College Khargone

Abstract:

Inclusive education through technology is an exciting and important topic! Technology has the potential to create more accessible and inclusive learning environments for students of all abilities. There are numerous ways in which technology can be used to promote inclusivity in education. One way is through assistive technologies, like screen readers, speech-to-text software, or specialized apps for students with disabilities. These tools can help students with visual impairments, hearing impairments, or learning disabilities to actively participate in the classroom and access educational materials.

Key Words: technology, software, apps etc.

Introduction

Online platforms and virtual classrooms provide opportunities for remote learning, enabling students who may be unable to physically attend school to still participate in education. This is particularly beneficial for students with chronic illnesses or those living in remote areas. Another aspect of inclusive education through technology is the use of adaptive learning software. By analysing student performance and adapting content and instructional strategies accordingly, adaptive learning software can cater to individual needs and learning styles, ensuring that all students can learn at their own pace and receive personalized support.

Universality of Digital Tech

Technology can foster inclusivity by promoting cultural diversity and global collaboration. Through online platforms, students from different backgrounds can connect and engage in meaningful cross-cultural exchanges, enhancing their understanding and empathy. Overall, inclusive education through technology has the potential to break down barriers and empower students. Another innovative way technology promotes inclusive education is through the use of gamification. By incorporating elements of games into the learning process, technology can

engage students in a fun and interactive way. This approach is beneficial for students with different learning styles or those who may struggle with traditional teaching methods.

Virtual reality (VR) and augmented reality (AR) are also transforming inclusive education. VR can create immersive learning experiences; permitting students to explore different environments, historical periods, or even simulations that help them understand challenging concepts. AR overlays digital information onto the real world, making it possible to provide additional visual aids or information to students in a way that is accessible and inclusive. Technology enables educators to differentiate instruction more effectively. With the help of learning management systems or educational apps, teachers can provide customized learning materials, assessments, and feedback tailored to each student's unique needs and abilities. This personalized approach helps ensure that all students can thrive and reach their full potential. Technology facilitates communication and collaboration among students, teachers, and parents. Online platforms, discussion forums, and video conferencing tools enable effective communication and information sharing, fostering a sense of community and support. This is especially valuable for students who may require additional assistance or accommodations.

One area worth highlighting is the use of data analytics and artificial intelligence (AI) in education. By analysing vast amounts of data, technology can identify patterns and trends in student performance, allowing educators to identify areas where additional support is required. This data-driven approach assists ensure that no student falls behind and that individualized interventions can be implemented to address specific learning needs. Moreover, technology provides opportunities for inclusive assessment methods. Traditional assessments often favor certain learning styles or may present barriers for students with disabilities. However, with the use of technology, assessments can be designed to accommodate diverse learning needs. For instance, students can demonstrate their understanding through multimedia presentations, interactive quizzes, or even virtual simulations. Another aspect of inclusive education through technology is the availability of open educational resources (OER). These free or low-cost digital resources, such as textbooks, videos, and interactive modules, provide equal access to quality educational materials for all students, regardless of their socioeconomic background or geographic location.

Technology also enhances accessibility features in digital content. Features like closed captions, transcripts, alternative text for images, and adjustable font sizes make educational materials more accessible to students with visual or hearing impairments, as well as those with learning disabilities. It fosters a sense of inclusivity by promoting student engagement and participation.

Interactive online platforms, collaborative tools, and multimedia resources can cater to different learning preferences, allowing students to actively engage with the material. This can be particularly beneficial for students who may feel more comfortable expressing themselves through digital mediums or those who thrive in interactive learning environments.

Digital technology also empowers teachers by providing them with resources and professional development opportunities to enhance their inclusive teaching practices. Online communities, webinars, and educational platforms offer a space for educators to share best practices, access training materials, and learn from experts in the field of inclusive education.

Here are a few examples of how technology is being used to promote inclusive education:

- Assistive Technologies: Screen readers, speech-to-text software, and specialized apps for students with disabilities enable them to access and engage with educational materials.
- Adaptive Learning Software: Platforms that analyse student performance and adapt content and instructional strategies accordingly, providing personalized learning experiences for all students.
- Virtual Reality (VR) and Augmented Reality (AR): Immersive VR experiences can help students explore different environments or historical periods, while AR overlays digital information onto the real world, providing additional visual aids or information for students.
- Gamification: Incorporating game elements into the learning process helps engage students with different learning styles or those who may struggle with traditional teaching methods.
- Open Educational Resources (OER): Free or low-cost digital resources, such as textbooks, videos, and interactive modules, provide equal access to quality educational materials for all students.
- Accessibility Features: Closed captions, transcripts, alternative text for images, and adjustable font sizes in digital content make educational materials more accessible to students with disabilities.
- Online Platforms and Virtual Classrooms: Enable remote learning, benefiting students who may be unable to physically attend school due to illness or distance.

In conclusion, technology's impact on inclusive education is vast and transformative. By leveraging its potential, we can create more accessible, engaging, and personalized learning

experiences for all students, ensuring that no one is left behind. technology has the power to revolutionize inclusive education by breaking down barriers and providing equal opportunities for all learners. It offers assistive technologies, adaptive learning software, and gamification to accommodate different learning styles and abilities. Virtual reality, augmented reality, and data analytics enhance engagement, assessment, and personalization of learning. Open educational resources and accessibility features promote equitable access to quality education materials. Moreover, technology facilitates communication, collaboration, and professional development for educators.

By embracing technology, we can create inclusive learning environments where every student can thrive, regardless of their background or abilities. It's an exciting journey towards a more inclusive future in education, and technology is a powerful ally in making it a reality. Together, we can leverage the potential of technology to foster inclusivity, empower learners, and ensure that education becomes truly accessible to all.

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शिक्षा में आधुनिक तकनीकी का प्रभाव

डॉo कुशल सिंह बघेल
सहायक प्राध्यापक प्राणी-शास्त्र
शासकीय स्नातकोत्तर महाविद्यालय खरगोन (मoप्रo)

शोध सारांश-

टेक्नोलॉजी भगवान का एक उपहार है. जीवन के उपहार के बाद यह शायद ईश्वर का सबसे बड़ा उपहार है। टेक्नोलॉजी ने निश्चित रूप से हमारे जीने के तरीके को बदल दिया है। इसने जीवन के विभिन्न पहलुओं को प्रभावित किया है और जीविका को नए सिरे से परिभाषित किया है! निस्संदेह, टेक्नोलॉजी जीवन के हर क्षेत्र में महत्वपूर्ण भूमिका निभाती है। कई मैन्युअल कार्यों को स्वचालित किया जा सकता है, टेक्नोलॉजी के द्वारा कई जटिल और महत्वपूर्ण प्रक्रियाओं को आसानी और अधिक दक्षता के साथ पूरा किया जा सकता है ! टेक्नोलॉजी ने शिक्षा के क्षेत्र में क्रांति ला दी है। टेक्नोलॉजी के उपयोग ने शिक्षण और सीखने की प्रक्रिया को और अधिक मनोरंजक बना दिया है। प्रस्तुत पेपर में टेक्नोलॉजी प्रभाव पर केंद्रित है

शब्द कुंजी- शिक्षा, आधुनिक तकनीकी, शिक्षण !

प्रस्तावना-

21वीं सदी के युग को अक्सर एक तकनीकी युग के रूप में माना जाता है । हमारे जीवन में तकनीकी आज, बहुत महत्वपूर्ण भूमिका निभाती है । इसे किसी अर्थव्यवस्था की वृद्धि के आधार के रूप में देखा जाता है। एक जो अर्थव्यवस्था प्रौद्योगिकी के मामले में कमजोर है वह कभी आगे नहीं बढ़ सकती आज का परिदृश्य. ऐसा इसलिए है क्योंकि प्रौद्योगिकी हमें बनाती है काम बहुत आसान और कम समय लेने वाला। इसका प्रभाव प्रौद्योगिकी को हर संभव क्षेत्र में एक ऐसे क्षेत्र में महसूस किया जा सकता है शिक्षा है आधुनिक तकनीक की अनुप्रयोग मदद के कारण, जीवन बेहतरी की ओर बदल गया है।स्कूलों में प्रौद्योगिकी के महत्व को नजरअंदाज नहीं किया जा सकता

है। शिक्षा में कंप्यूटर के आगमन के साथ, शिक्षकों के लिए ज्ञान प्रदान करना और छात्रों के लिए इसे प्राप्त करना आसान हो गया है

शिक्षा में आधुनिक तकनीकी

आधुनिक उपकरण प्रौद्योगिकी के उपयोग से पता चलता है की उपकरण, से छात्रों की सीखने और अन्तरक्रियाशीलता में वृद्धि होती है। यह अधिक इंटरैक्टिव होने के साथ-साथ भरपूर दिलचस्प भी लगता है ! प्रौद्योगिकी द्वारा ज्ञान बहुत आसान और सुविधाजनक भी हो जाता है । हमारा मन अब इस ओर प्रवृत्त होता है जीवन का कोई भी हिस्सा हो आधुनिक शिक्षा के उपयोग में सहायता मिलने पर तेजी से काम करें ! विश्वविद्यालय और कॉलेज में निर्भरता नवाचार, जो जीवन को एक आसान, सहज बनाता हो ! छात्र आज प्रौद्योगिकी को निम्नलिखित तरीकों से इसका उपयोग कर सकते हैं:

इंटरनेट कनेक्शन और चौबीसों घंटे कनेक्टिविटी

छात्रों के लिए इंटरनेट का महत्व कई गुना बढ़ गया है शिक्षा में इसका महत्व दुनिया को अब कभी भी कमज़ोर नहीं किया जा सकता। की सम्भावना के बावजूद धोखाधड़ी और कमियां, इंटरनेट का उपयोग वरदान की तरह है । आज, इंटरनेट एक ऐसी चीज़ है जो मौजूद है लगभग हर चीज़ में जिसका हम उपयोग करते हैं। टेलीविजन से लेकर गेमिंग तक , और हमारे फोन, इंटरनेट वस्तुतः है हर जगह. इंटरनेट का उपयोग छात्रों को खोजने की अनुमति देता है अद्भुत सुविधा, वे विभिन्न प्रकार की सहायता पा सकते हैं, ट्यूटोरियल और अन्य प्रकार की सहायक सामग्री जो हो सकती है शैक्षणिक रूप से सुधार करने और उनकी शिक्षा को बढ़ाने के लिए उपयोग किया जाता है

प्रोजेक्टर और विज़ुअल का उपयोग करना

सीखने में सहायता के लिए प्रोजेक्टर और विज़ुअल का उपयोग करना है महान तकनीकी उपयोग का दूसरा रूप। शीर्ष संस्थान दुनिया भर में अब अद्भुत के उपयोग पर भरोसा करें PowerPoint प्रस्तुतियों और अनुमानों को रखने के लिए सीखना इंटरैक्टिव और दिलचस्प है। तकनीकी उपयोग

जैसे कि स्कूल और कॉलेजों के अंदर प्रोजेक्टर ले सकते हैं बातचीत और रुचि का स्तर बढ़ता है और उसमें सुधार भी होता है प्रेरणा। विद्यार्थियों को आकर्षक दृश्य देखना पसंद है कुछ ऐसा जो उन्हें पढ़ने के बजाय सोचने के लिए प्रेरित करता है । सीखने का हिस्सा भी काफी कुशल हो जाता है जब यह प्रौद्योगिकी की बात आती है ।

प्रौद्योगिकी के उपयोग से ऑनलाइन डिग्रियाँ

ऑनलाइन डिग्री अब बहुत आम हो गई है घटना। लोग अपने लिए ऑनलाइन कोर्स करना चाहते हैं सीखना और प्रमाणपत्र. शीर्ष संस्थान अद्भुत पेशकश करते हैं विभिन्न उपयोग के साथ ऑनलाइन कार्यक्रम इटरनेट। जैसे-जैसे आगे बढ़ेगी, बढ़ती रहेगी अधिक समर्थन और जागरूकता में सहायता करेंग ।

शिक्षा क्षेत्र में डिजिटल शिक्षा

अगर हम डिजिटल और शिक्षा की बात करें तो शिक्षा क्षेत्र में डिजिटल मीडिया की पैठ हो गई है अब बड़ा हो गया. इस पैठ के परिणामस्वरूप चौबीसों घंटे काम होता है छात्रों और विभिन्न मंचों के साथ कनेक्टिविटी विभिन्न प्रकार के कार्यों या सहायता के लिए उपलब्ध। डिजिटल की शक्ति बढ़ती है, और भी हैं और होंगी अनुप्रयोग जो छात्रों को विकास में सहायता करेंग !

शिक्षा में प्रौद्योगिकी का महत्व

शिक्षा के क्षेत्र में प्रौद्योगिकी की भूमिका चार गुना है: इसे पाठ्यक्रम के एक भाग के रूप में शामिल किया गया है सहायता के साधन के रूप में अनुदेशात्मक वितरण प्रणाली निर्देश और संपूर्ण शिक्षण को बढ़ाने के लिए एक उपकरण के रूप में भी प्रक्रिया। कॉर्पोरेट और अकादमिक में शिक्षा आवश्यक है । पूर्व में, शिक्षा या प्रशिक्षण का उपयोग मदद के लिए किया जाता है कर्मचारी काम पहले की तुलना में अलग तरीके से करते हैं। शिक्षा का उद्देश्य जिज्ञासा पैदा करना है छात्रों के मन. किसी भी स्थिति में, प्रौद्योगिकी का उपयोग किया जा सकता है !

शिक्षा में प्रौद्योगिकी को प्रभावित करने वाले कारक

तेजी से विस्तार के कारण हमारे समाज में इसका सामना करना पड़ रहा है । आधुनिक प्रौद्योगिकियां इसकी मांग रही हैं शिक्षक सीखते हैं कि इन प्रौद्योगिकियों का उपयोग कैसे किया

जाए. इसलिए ये नई शिक्षण प्रौद्योगिकियां बढ़ती हैं शिक्षकों के प्रशिक्षण की आवश्यकता है शिक्षा में आई सी टी का सफल कार्यान्वयन हैं। शिक्षक हमेशा सकारात्मक नहीं होते कंप्यूटर के प्रति दृष्टिकोण और उनका ख़राब रवैया हो सकता है कंप्यूटर आधारित परियोजनाओं की विफलता का कारण बनता है इसके अलावा सबसे आम तौर पर उद्धृत बाधाएं हैं-

- समय की कमी
- पहुंच की कमी
- संसाधनों की कमी
- समर्थन की कमी
- ख़राब या धीमी इंटरनेट कनेक्टिविटी

आई सी टी का शिक्षा पर प्रभाव

आई सी टी में वृद्धि की संभावना है शिक्षा तक पहुंच और इसकी प्रासंगिकता और गुणवत्ता में सुधार हुआ हे । शिक्षा के माध्यम से शिक्षकों और छात्रों दोनों को ज्ञान की उन्नति हुई हे। सक्रिय शिक्षण: आई सी टी उपकरण गणना के लिए मदद करते हैं। कम्प्यूटरीकृत और पूछताछ के लिए छात्रों की परफॉर्मेंस रिपोर्ट भी दी जा रही है आसानी से उपलब्ध कराया गया। याद रखने पर आधारित या रटकर सीखने, आई सी टी के विपरीत शिक्षार्थी की सहभागिता को बढ़ावा देता है क्योंकि शिक्षार्थी क्या चुनते हैं अपनी गति से सीखना और वास्तविक जीवन पर काम करना हैं ।

सहयोगात्मक और सहकारी शिक्षा:

आई सी टी के बीच बातचीत और सहयोग को प्रोत्साहित करता है विद्यार्थी, शिक्षक चाहे जितनी भी दूरी हो उन दोनों के बीच। यह छात्रों को मौका भी प्रदान करता है । विभिन्न संस्कृतियों और कामकाजी लोगों के साथ काम करें! समूहों में एक साथ, छात्रों को आगे बढ़ने में मदद करता हे! शोधकर्ताओं ने पाया है कि आम तौर पर आई सी टी के उपयोग से शिक्षार्थियों के बीच अधिक सहयोग बढ़ता है। छात्रों और शिक्षकों के बीच संवादात्मक संबंध । "सहयोग एक दर्शन है जहां व्यक्तियों की बातचीत और व्यक्तिगत जीवनशैली सीखने मदत करता हे!

मूल्यांकनात्मक शिक्षण:

सीखने के लिए आई सी टी का उपयोग है छात्र-केंद्रित और उपयोगी प्रतिक्रिया प्रदान करता है ! विभिन्न इंटरैक्टिव सुविधाएँ आई सी टी छात्रों को इसकी अनुमति देता है शिक्षण के नए तरीकों की खोज करें और सीखें !

सकारात्मक प्रभाव

1. **उन्नत शिक्षण और सीखना:**

 किसी अवधारणा को आसानी से समझने के लिए डिजिटल कैमरे जैसे तकनीकी विकास, प्रोजेक्टर, दिमाग प्रशिक्षण सॉफ्टवेयर, कंप्यूटर, पावर बिंदु प्रस्तुतियाँ, 3डी विज़ुअलाइज़ेशन उपकरण; इन सभी शिक्षकों के लिए छात्रों की मदद करने के स्रोत बन गए ।

 छात्रों को दृश्य व्याख्या सीखने को मज़ेदार और आनंददायक बनाती हैं वे इसमें अधिक भाग लेने में सक्षम हैं कक्षा और यहां तक कि शिक्षकों को भी अपना काम करने का मौका मिलता है कक्षाएं अधिक इंटरैक्टिव और दिलचस्प होती हे ।

2. कोई भौगोलिक सीमा नहीं:

 वहां ऑनलाइन डिग्री कार्यक्रमों की शुरुआत के साथ में शारीरिक रूप से उपस्थित होने की शायद ही कोई आवश्यकता है । यहाँ तक कि कई विदेशी विश्वविद्यालयों में भी है ऑनलाइन डिग्री पाठ्यक्रम शुरू किया है जिसमें छात्र शामिल हो सकते हैं।

 दूरस्थ शिक्षा और ऑनलाइन शिक्षा बन गई है आजकल शिक्षा प्रणाली का बहुत महत्वपूर्ण हिस्सा है।

नकारात्मक प्रभाव

1. **लेखन कौशल में गिरावट:**

 ऑनलाइन चैटिंग के अत्यधिक उपयोग के कारण और शॉर्टकट, आज के युवाओं का लेखन कौशल पीढ़ी में काफी गिरावट आई है।

 आजकल बच्चे इन पर अधिक भरोसा करने लगे हैं डिजिटल संचार जिसे वे पूरी तरह से भूल चुके हैं उनके लेखन कौशल में सुधार के बारे में।

 वे अलग-अलग शब्दों की वर्तनी नहीं जानते, कैसे व्याकरण का सही उपयोग करना या घसीट लेखन कैसे करना है।

2. धोखाधड़ी की बढ़ती घटनाएं:

ग्राफिकल कैलकुलेटर जैसे तकनीकी विकास, उच्च तकनीक घड़ियाँ, मिनी कैमरे और इसी तरह के उपकरण

परीक्षा में नकल करने का बड़ा जरिया बन गए हैं।

3. फोकस की कमी:

 एस एम एस या टेक्स्ट मैसेजिंग एक पसंदीदा शगल बन गया है कई छात्रों का. छात्र उनके साथ खेलते नजर आ रहे हैं सेल फोन, आईफ़ोन दिन-रात या ड्राइविंग और बहुत कुछ अक्सर व्याख्यानों के बीच भी।

 ऑनलाइन दुनिया से हमेशा जुड़े रहने का परिणाम यह हुआ है पढ़ाई में फोकस और एकाग्रता की कमी और कुछ हद तक, खेल और पाठ्येतर गतिविधियों में ।

लाभ

 यह छात्रों को सीखने के लिए अधिक उत्साहित करता है।

 छात्रों को व्यस्त कार्यक्रम, काम करने की आजादी में मदद करें अपने समय पर घर।

 छात्रों को नई प्रौद्योगिकी कौशल सीखने के लिए प्रशिक्षित करें जो वे कर सकते हैं कार्यस्थल पर बाद में उपयोग करें.

 कागज और फोटोकॉपी की लागत कम करें, प्रचार करें "हरित क्रांति" की अवधारणा

नुकसान

 कई विशेषज्ञों और अनुभवी लोगों का कहना है कि, के कारण शिक्षा में ऐसी तकनीक, छात्रों की कल्पना है प्रभावित होने पर उनकी सोचने-समझने की क्षमता कम हो जाती है।

 कभी-कभी इसमें शिक्षक का भी समय लगता है दृष्टिकोण।

 ऐसी तकनीक स्थापित करना महंगा है।

 सीमा से अधिक उपयोग करने पर स्वास्थ्य संबंधी समस्याएं भी हो सकती हैं।

 कुछ छात्र आधुनिक कंप्यूटर नहीं खरीद सकते प्रौद्योगिकियाँ।

निष्कर्ष

प्रौद्योगिकी का शिक्षा आदि पर सकारात्मक प्रभाव पड़ता है साथ ही यह समय नकारात्मक प्रभाव भी डाल सकता है। शिक्षक और विद्यार्थियों को इसका अच्छे से लाभ उठाना चाहिए उन कमियों को दूर करें जो बहुतों को पीछे खींच रही हैं छात्रों के साथ-साथ स्कूलों को भी उत्कृष्टता हासिल करने से रोका। यह है इस प्रकार हर देश के लिए और अधिक परिचय देने का समय आ गया है भविष्य में तकनीकी रूप से सुसज्जित शिक्षा क्षेत्र आगे बढ़े ।

संदर्भ ग्रंथ सूचि-

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A Review on Traditional & Modern Tools in Teaching & Learning

Girish Shiv

Department of Botany
Govt. P.G. College Khargone (M.P.)

Abstract:

The traditional and contemporary teaching tools employed in our educational institutes are the subject of this essay. After defining teaching aids, the article goes on to explain a variety of classic teaching tools that have remained crucial to classroom instruction practices even in the present. The article then goes over the numerous contemporary teaching tools that are now on the market. The author comes to the conclusion that educational institute should utilize both conventional and contemporary teaching tools to their fullest potential. Teaching aids are anything that helps students easily understand and comprehend what is being taught. This definition includes laboratory assistants in educational institutes science labs as well as teachers, tutors, and anyone else involved in the teaching profession. The use of teaching tools can help students' speaking, writing, and reading abilities. The teaching tools can easily illustrate and reinforce any concepts, knowledge, or abilities that the pupils have already learned. The engaging and user-friendly teaching tools assist in removing any difficult feelings that students may have while learning their fields of study, like worry, fear, boredom, and others. modern educational tools.

Key words: Traditional, Contemporary, Conventional, Teaching Aids, Educational Institute

Introduction

The manner of instruction has changed noticeably throughout time. With the benefits of modern teaching methods, interactive ways of teaching have been introduced, and the results can be seen. These methods have replaced memorization and the standard recitation practice to teach the pupils. Because modern teaching methods, unlike the traditional method of teaching, do not treat all pupils at the same level of their understanding abilities, this educational reform offers a completely different perspective on teaching and learning. Modern teaching techniques put less emphasis on lecturing and more emphasis on discussion, demonstration, practical application, cooperation, and activity-based learning.There are several ways that teaching tools help pupils learn. To encourage their students to listen intently and with interest, teachers employ a variety of teaching tools. Traditional teaching tools include textbooks, blackboards, posters, globes, charts, and other visual

aids. But as technology has advanced, so have teaching tools, which can now be divided into a variety of categories such as audio aids, visual aides, mechanical teaching aids, audio-visual aids, and more.

Traditional Teaching Tools

As the name implies, traditional teaching aids have been around for a while. When there was no technology, these educational tools were crucial. Blackboards, textbooks, charts, pictures, posters, maps, atlases, globes, flash cards, flip cards, worksheets, science lab tools and supplies, models, crossword puzzles, quizzes, dramatizations, one-act plays, dictionaries, encyclopaedias, reference books, learning toys, and abacus are among the common traditional teaching tools. Let's examine each of these instructional tools individually.

Chalks and Blackboards- Along with text books, blackboard is one of the oldest and most used teaching tools in education. Green boards have recently replaced black ones, although the core purpose of the board remains the same regardless of the colour used to describe it.

Text Books- Since the beginning of time, text books of studies for specific courses in an educational institution have been a teacher's other extremely helpful tool. A teacher utilizes the text book to read and explain to the pupils everything contained in the text book lessons.

Charts, Pictures and Posters - Teachers employ teaching aids like charts, photographs, and posters that are posted on the walls of the classrooms to make lessons easier for students to understand.

Globes, Atlases and Maps -When teachers apply wall maps, atlases, and globes to help students understand and know various geographical ideas and to know the locations of various places in the world, geography classes get more realistic.

Scientific Apparatus, Materials and Models - Without showing the students real-world applications through lab or class activities, no scientific instruction can be considered complete, like zoological parks and places, eaves, twigs, flowers, seeds etc.

Morden Teaching Tools

The breadth of knowledge in science and technology has grown significantly over the past several years, as has people's capacity to absorb new information in these fields. Therefore, there is a huge demand for inventive and creative brains to explore uncharted territory in a variety of industries.

Adopting current techniques is the only way to thrive in the modern world and the knowledge-driven era of technology. Computers, internet browsing, laptops, electronic note books, e-readers, computer educational games, online dictionaries, encyclopaedias, picture dictionaries, talking dictionaries, online tests, online e-books, audio-video teaching aids for learning a variety of subjects, including languages, PowerPoint slides and games, flash educational games, lesson relayed on radio by satellite, lesson relayed on TV by specific TV channels, and Educa include modern teaching aids. Let's talk about some of the most significant contemporary teaching tools.

Computers - One of the most crucial educational tools of the current day is the computer. Without computers, education in the modern era is deemed insufficient. All additional electronic learning tools are built around this fundamental device. These are available in a variety of formats, including desktop computers, laptops, notebooks, and plain e-readers.

Interactive Electronic White Board - The most recent teaching aids are the interactive electronic whiteboards, or "smart boards," that are used nowadays. These calls need a computer, an overhead projector, and instructional software that is already loaded. Only educational institutions that collect extremely high rates of fees from the pupils will be able to afford this expensive technology, which requires a significant investment.

Overhead Projectors, Slide Projectors and Projector Screens - Slide projectors are only used for playing miniature slides on the projector screens; the images, however, are still images rather than moving ones. However, compared to modern electronic projectors, it is a practical and affordable teaching tool.

Power Point Slides - Slideshow PowerPoint presentations and PowerPoint games play a significant role in contemporary schooling. Anyone with a rudimentary understanding of PowerPoint can create slides and games on the pertinent educational topics with very little instruction. If a teacher is genuinely engaged in learning and using this medium to teach his or her students, they can accomplish this task extremely quickly.

Online Dictionaries and Encyclopaedias - The explosion of online learning alternatives has spread like wildfire among today's kids. Internet knowledge is developing among many students. This is due to the fact that the internet provides young learners with a wide range of chances through tens of thousands of websites. Free online dictionaries, encyclopaedias, and talking and visual dictionaries are all available.

Conclusion

The importance of teaching increased to the point where it was impossible to imagine a classroom without a teacher sketching diagrams and images with chalk or writing the lesson notes on the board, which the pupils assiduously copied into their notebooks. Most Indian Education institute still use the same teaching techniques; however, many have switched to the more contemporary ones as mentioned above. The optimal approach is to combine both conventional and cutting-edge teaching strategies. Today's teachers must stay up to date on the latest educational technology and take advantage of every opportunity to get it installed in their classrooms. the present-day educators.

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Modern Technology need of 21st Century Education System

Gagan Patidar

Govt. P. G. College, Khargone

Abstract

The cynosure of this paper is the use of modern technology in education system of new world. In this 21stcentury education system, teaching learning methodology gearing towards application of ICT tools, this article will pivot around the benefits of modern technology for teaching learning and sorting out the problem of interactive learning for the students of remote areas. This article emphasises over paradigm shift from the traditional teaching learning systems to the modern ICT application. When the new modern world is demanding new means of learning, and the age of digitalisation and digi humanisation the importance of computer aided learning has increased incredibly. The advantages and disadvantages are also discussed briefly.

Keywords

Digitalisation, ICT (Information and communication technology), AI (Artificial Intelligence), E-Content, NEP 2020 (new education policy), ComAidEdu (computer aided education), Innovation, cynosure, Incredible, Digi humanisation, Chat gpt, LMS (learning management system).

Introduction

Colony on the moon is not a distant dream because of modern technology.In this age of digitalisation ,digihumanisation ,need of education system has been drastically changed and the paradigm shift in 21 st century education system is just because of innovation in technology.The ComAidEdu(computer aided education) methodology immensely helpful in teaching and learning . The use of Artificial Intelligence and Chat gpt transformed the learning system and not only helps learners in exploring different dimensions of education but saves their time significantly. This advancement in new age interactive teaching learning owes a lot to the use of information and communication technology.

New Education Policy 2020 and Modern Technology

The concept of NEP (New Education Policy)in India advocated learning in regional languages , value system as well as the use of ICT tools , the learning management system provides readymade (E- content) learning material to the students which is based on four quadrants viz: E - Content

,E- tutorial ,self assessment, learn more(references), and that has made all the difference in interactive teaching learning .In English Literature it is famous saying by an eminent writer that ,two roads diverged in the woods , and I have chosen the less travelled by and that had made all the difference .The same is with use of modern technology in teaching learning which can make huge difference in understanding of any concept, solving any puzzle ,and resolving any issue within the stipulated time by Innovative modern technology.

ICT Tools

Modern Technological tools which are immensely helpful in new age teaching learning process viz ; chat gpt ,power point presentation ,projectors, smart board, interactive electronic white board , computer, online dictionaries , Digital toolkit like ,skype, twitter, snapchat , facebook, google docs, wikispaces, delicious , google scholar , slideshare, dropbox. Automation and, bridging the cultural divide - access to technology has aided in bridging the cultural divide by allowing them to connect with each other by the modern means of communication. Educational networking, web based learning , mobile learning , classroom equipment or flipped classrooms , tablets ,E-readers are also effective ICT tools in teaching learning methodology.

Advantages of ICT Tools in Teaching learning

Preserving Ecosystem by minimising use of paper, Economic in long term utility, Easy to manage students of far flung vicinity , improved data and secured system , application of graphics , videos, can help in better understanding ,brings awareness about socio impact of technological changes in education , promoting digital culture in universities ,colleges and schools. Mobile learning and classroom equipment will not only easy to operate but interesting to understand with clarity.

Disadvantages of ICT Tools

Cyber bullying ,not easy to access everywhere and reliance on technology are the challenges of the use of modern technology in education system.

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Conclusion

The synthesis of traditional method of teaching learning and modern technology and tools will be significant in providing effective and interactive learning methodology and it is the need of the time for exploring new avenues of modern world education .This will not only resolve the problems of teaching learning for the far flung corners of any area , but it will also cross all the

barriers and remove obstacles in fulfilling the dreams of students . The scientific exploration , the managerial skills and need of industry , the medical education system and all other sectors of 21 st century as well as the aspirations of eight billion population on this earth can be easily fulfilled with the ComAidEdu (computer aided education) system and ICT tools, and not only education system but all the avenues and challenges of the new world can be faced effectively by modern technology. Artificial Intelligence can also revolutionise the education system of the coming generation . In nutshell ,the thrust area is to bring harmony between traditional and modern means of teaching learning simultaneously keeping an eye on the innovation in modern technology and its application.

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Development of Virtual Reality Technology in the aspect of Educational Applications

Dr. D. S. Bamniya[1], Dr. A. Sanvalia[2]

Govt. P. G. College Khargone (M. P.)

Abstract

The pace of change brought about by new technologies had a significant effect on the way people live, work, and play worldwide. New and emerging technologies challenge the traditional process of teaching and learning, and the way education is managed. Information technology, (IT) while an important area of study in its own right, is having a major impact across all curriculum areas.

E-learning has become one of the most important technologies of the modern era. E-learning is a learning process which aims to create an interactive learning environment based on the use of computers and the internet. Through e-learning, learners can access resources and information from anywhere and at anytime. Many higher education institutions have expressed an interest in implementing e-learning, and e-learning readiness is a critical aspect in achieving successful implementation. E-learning is an educational method which aims to provide educational or training programs for students or trainees at any time and at any place using information and communication technology (ICT).

Keywords: IT- Information Technology, ICT- Information and communication Technology, VR- virtual reality,

Introduction

The combination of education and technology has been considered the main key to human progress. Education feeds technology, which in turn forms the basis of education. It is therefore evident that information technology has affected changes to the methods, purpose and perceived potential of education. The usage of information technology (IT), broadly referring to computers and peripheral equipment, has seen tremendous growth in service industries in the recent past (Berger, 2003).The increasing role played by information technology in the development of society calls for an active reaction to the challenges of the information society.

Information and communication technology has created new opportunities to improve the existing education systems and learning styles, and has helped to develop and innovate new and effective teaching and learning methods (Salem, 2006). It has also helped to develop many modern

concepts and tools in the field of education, such as e-learning. E-learning is the use of electronic media, educational technology and information and communication technologies (ICT) in education (Contreras & Shadi, 2015). E-learning involves the application of new technologies, such as the internet, intranet, email and satellite broadcasts, to the learning process (Puteh (2008). E-learning helps to increase the flexibility of the educational process and facilitate communications and interactions between teachers and students. The provision of this service on the internet makes it available and easy to use by most students anytime and anywhere through the use of their personal computers. E-learning plays a prominent role in the field of education but faces a number of challenges that hinder the achievement of its objectives (Najib & Rebhi, 2006).

Mobile technologies are a familiar part of the lives of most teachers and students in the all over world today. We take it for granted that we can talk to other people at any time, from wherever we may be; we are beginning to see it as normal that we can access information, take photographs, record our thoughts with one device, and that we can share these with our friends, colleagues or the wider world. Newer developments in mobile phone technology are also beginning to offer the potential for rich multimedia experiences and for location-specific resources.

Significance of it in Educational Sector

Now IT has made it easy to study as well as teach in groups or in clusters. With online we can be unite together to do the desired task. Efficient postal systems, the telephone (fixed and mobile), and various recording and playback systems based on computer technology all have a part to play in educational broadcasting in the new millennium. The Internet and its Web sites are now familiar to many children in India and among educational elites elsewhere, but it remains of little significance to very many more, which lack the most basic means for subsistence. Audio-Visual Education, planning, preparation, and use of devices and materials that involve sight, sound, or both, for educational purposes. Among the devices used are still and motion pictures, filmstrips, television, transparencies, audiotapes, records, teaching machines, computers, and videodiscs. The growth of audiovisual education has reflected developments in both technology and learning theory.

What are the New Mobile Technologies, and why are they relevant to Learning?

With respect to technologies, ‘mobile’ generally means portable and personal, like a mobile phone. Many examples of learning with mobile technologies fit in to this description. Personal digital assistants and mobile phones are the most commonly used technologies for mobile learning, but they exist within the larger space of possible mobile technologies that can be broadly categorized on the two dimensions of personal vs shared and portable vs static.

New Learning and Teaching Practices and Mobile Technologies

Most previous article of mobile technologies and learning have been concerned with the use of these technologies to address specific curriculum areas. In this article, we take an activity-centered perspective, considering new practices against existing theories. Virtual reality and education For decades psychologists investigated video games as a model of internally motivated learning. Techniques such as: mechanisms of control, challenge, interest, cooperation, or competition are the basic elements of the theory of motivation8. Within an effective learning environment based on educational games a student works to achieve a certain goal, making various decisions along the way and accepting their consequences. The basis for the understanding of VR technique in education is learning about the systems which allow a human to see on the goggle (headset) display a simulated environment and the device tracks his movements and reflects them in virtual reality.

Visual Literacy from a Historical Perspective

The presence of visual elements in today’s teaching and learning is increasing as the integration of images and visual presentations with text in textbooks, instructional manuals, classroom presentations, and computer interfaces broadens. Although the educational community is embracing visual enhancements in instruction, the connection of visual and verbal information is evident throughout history. According to the poet Simonides, “Words are the images of things” similarly, Aristotle stated that, “without image, thinking is impossible”. These symbols portray a man-made language with no distinction between words and pictures, just as musical notes convey the language of music. Only after the printing press was invented were illustrations and type separated, with illustrations often falling by the wayside. Recent history shows a reversal in this separation with greater reliance on visually oriented approaches to information presentation. The results are leading to a visualization movement in modern computing whereby complex

computations are presented graphically, allowing for deeper insights as well as heightened abilities to communicate data and concepts. Visualization helps make sense of data that may have seemed previously unintelligible. Leonardo da Vinci, in recognizing the impossibility of recording volumes of data, translated words into drawings from different aspects. As history repeats itself, we may find that a great deal of information is better presented visually rather than verbally.

Conclusions

The findings of this article support those of earlier reviews by other researchers. The classroom use of educational technology will undoubtedly continue to expand and play an increasingly significant role in public education in the years to come as technology becomes more sophisticated and more cost-effective. This review highlights the need for more randomized studies. In addition, schools and districts should make concerted efforts to identify and adopt research-proven educational technology

In time of strong competition of educational offers, the biggest challenge for universities concerns changing the model of education for the purpose of adapting it to the individual needs of the candidate. University managers have to find a balance between satisfying programmed requirements and satisfying the individual needs of candidates. In a constantly changing world it is important to follow the language of students and understand their needs. Simply delivering knowledge is not a feat. Methods and techniques of delivering knowledge are more important. New technologies are ready for application on a broad scale; however, the biggest limitations for new technologies are people themselves. Some are afraid of losing their jobs, others can't imagine changes. Managing education, company, society in the contemporary world focuses on adapting the model of management to the current trends on the market. Universities cannot rely only on their brand, they have to be competitive and provide students with new possibilities. An innovative method of teaching should encourage acquisition of knowledge and the will to actively participate in classes. After graduation the student should feel comfortable entering the professional community within the areas he studied during classes.

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शिक्षण में प्रौद्योगिकी की आवश्यकता, संभावनाएँ एवं चुनौतियॉ

डॉ. जी.एस. चौहान,

प्राध्यापक अर्थशास्त्र,
शासकीय स्नातकोत्तर महाविद्यालय खरगोन

आधुनिक युग में शिक्षण कार्य कक्षा में बोर्ड पर लेखन एवं व्याख्यान से कही अधिक आगे निकल गया है। विज्ञान की विकास यात्रा ने संचार एवं सूचना प्रोद्योगिकी के माध्यम से शिक्षण एवं अधिगम को सरल, सुलभ एवं सुविधाजनक बनाया है। शिक्षण कार्य में प्रोद्योगिकी उपकरणों का प्रयोग बहुत जिम्मेदारी के साथ तथा बिना किसी भेदभाव के सूचना को ढूंढने, अन्वेषित करने, विश्लेषित करने, उसका आदान-प्रदान करने तथा विद्यार्थियों के समक्ष प्रस्तुत करने के लिए प्रयोग में लाया जाता है।

1) शैक्षिक प्रौद्योगिकी की विशेषताएँ -

1. प्रौद्योगिकी के विकास एवं प्रयोग ने शिक्षा के क्षेत्र में विभिन्न तरीको को विकसित करने में योगदान दिया है जैसे- माइक्रो शिक्षण विधि, इंटरेक्शन विश्लेषण, ऑडिया-विडियो एड्स और प्रोग्राम लर्निंग विधि।

2. प्रौद्योगिकी ने शिक्षण प्रक्रिया को वस्तुनिष्ठ आसान, स्पष्ट, रोचक एवं वैज्ञानिक बनाने में सहायता की है।

3. शिक्षण उद्देश्य के लिए मशीनों एवं उपकरणों का प्रयोग किया जाता हैं। इसमें दृश्य एवं श्रव्य उपकरणों, कम्प्यूटर हार्ड वेयर एवं साफ्टवेयर प्रोजेक्टर, इन्टरऐक्टिव पेनल, रेडियो, टी.वी., इंटरनेट, टेपरिकार्डर, मोबाईल आदि परिष्कृत इलेक्ट्रानिक उपकरणों का उपयोग किया जाता है।

2) <u>प्रौद्योगिकी की आवश्यकता एव महत्व</u>- शिक्षण की प्रक्रिया में प्रौद्योगिकी का उपयोग निम्नलिखित कारणों से आवश्यक हो गया है।-

1. देश की जनसंख्या बहुत तेजी से बढ़ रही है। जिससे सभी विद्यार्थियों को कक्षा में शिक्षित नहीं कर सकते है। आधुनिक तकनीक का उपयोग कर एक साथ लाखों विद्यार्थियों को शिक्षा प्रदान की जा सकती है।

2. नए ज्ञान का विस्तार बहुत तेजी से हो रहा है। एक शिक्षक से यह अपेक्षा नहीं की जा सकती कि वह कक्षा शिक्षण के माध्यम से इतनी बड़ी मात्रा में ज्ञान प्रदान करें। प्रौद्योगिकी के द्वारा यह कार्य आसान हो जाता है।

3. प्रौद्योगिकी के द्वारा शिक्षको में शिक्षण कौशल का विकास होता है।

4. प्रौद्योगिकी ने शिक्षण की पूरी प्रक्रिया को वस्तुनिष्ठ, स्पष्ट वैज्ञानिक एवं रोचक बना दिया है।

5. प्रसिद्ध शिक्षकों एवं विषय विशेषज्ञों की सेवाएँ प्रौद्योगिकी के माध्यम से आसानी से उपलब्ध होने लगी है। विशेषज्ञ दूरस्थ स्थानों पर बैठकर आधुनिक तकनीक से अवगत कराने का कार्य करते हैं।

3. <u>शिक्षण/साधन/सामग्री के प्रकार</u> - कक्षा शिक्षण में परम्परागत साधनों के अंतर्गत चाक, बोर्ड व पुस्तक का उपयोग इसलिए किया जाता था कि बिजली, फोन, कम्प्यूटर एवं इंटरनेट की सुविधा शिक्षण संस्थाओं में उपलब्ध नही थी। आज इन सुविधाओं का विस्तार हुआ है, जिससे शिक्षक एवं विद्यार्थी कम्प्यूटर, टेलीविजन, रेडिया, इंटरेक्टिव व्हाईट बोर्ड, मल्टीमिडिया, गेम्स आदि साधनों का उपयोग करते है। परियोजना कार्य मे सम्मिलित पी.पी.टी., स्लाईड, फिल्म स्ट्रीप्स, ओवर हेड प्रोजेक्ट के सहयोग से प्रदर्शित सामग्री को बडी-छोटी कर उपयोग किया जा रहा है। शिक्षण सामग्री को आवश्यकतानुसार रंगीन भी किया जा सकता है। इसी प्रकार पोस्टर एवं पिक्टोरियल मटेरियल का उपयोग भी किया जाता है। शिक्षण के लिए एक निश्चित कक्षा के स्थान पर माईक्रोसाफ्ट टीम, झूम क्लासरूम, नियरपोड, मेंटीमीटर, गूगल फार्म, गूगल क्लासरूम, गूगल हेंगोट्स मीट, यूट्यूब आदि का अध्ययन अध्यापन के लिए कही पर भी बैठकर किया जा सकता है।

4. <u>शिक्षण में प्रौद्योगिकी की संभावनाएँ-</u> प्रौद्योगिकी का उपयोग कर शिक्षण को सरल व रूचिकर बनाने में मदद मिलती है। अध्ययन की किसी भी शाखा चाहे वह समाज विज्ञान हो, कला हो, विज्ञान हो, वाणिज्य हो या कोई ओर सभी में विद्यार्थियों की समझ को विकसित कर ज्ञान को बढाने में आधुनिक तकनीकी सामग्री सहयोग देती है। शिक्षण की आधुनिक तकनीक के उपकरण छात्रों को सक्षम बनाते है, छात्रों की सूचना तक व्यापक पहूँच बढने से उनके कौशल में वृद्धि होती है। प्रौद्योगिकी उपकरणों की सहायता से शिक्षण के दौरान चार्ट, डायग्राम, चित्र, तालिकाएँ, मेप आदि को बार-बार बनाने की आवश्यकता से मुक्ति मिल जाती है। इसी प्रकार व्याख्यान के दौरान पावर पाईंट प्रजेंटेशन से विद्यार्थियों में एकाग्रता का विकास होता है। आर्थिक विकास के साथ-साथ शिक्षण में प्रौद्योगिकी की संभावनाएँ बढती जा रही है। प्रौद्योगिकी समय व साधनों की बचत भी करती है।

5. <u>प्रौद्योगिकी की चुनौतियॉ-</u> प्रौद्योगिकी में शिक्षण व सीखने के तरीके को पूरी तरह से बदलने की शक्ति है। शिक्षा में प्रौद्योगिकी के शतप्रतिशत उपयोग में अभी कई चुनौतियॉ है। शिक्षण संस्थाओं में समावेशी और गुणवत्ता पूर्ण शिक्षा के लिए बुनियादी सुविधाओं में समावेशी और गुणवत्ता पूर्ण शिक्षा के लिए बुनियादी सुविधाओं का अभाव है। प्रौद्योगिकी का बेहतर उपयोग करने वाले अनुभवी शिक्षकों का अभाव है। बहुत से पाठ्यक्रम ऐसे है, जो अनुप्रयुक्त व अप्रासंगिक है। अभी भी अच्छे स्तर के शोध कार्य का अभाव है। कक्षाओं में विद्यार्थियों की उपस्थिति कम हो रही है। प्रौद्योगिकी के बढते प्रयोग के कारण मानवीय मूल्यों की अवहेलना में वृद्धि हो रही है। शिक्षण में आधुनिक तकनीक की शिक्षण सामग्री का उपयोग करने के लिए शिक्षकों में पर्याप्त योग्यता नही है। शिक्षण संस्थानों में उच्च कोटि के दृश्य एवं श्रव्य उपकरणों की कमी है। धीमी गति की इंटरनेट सेवा भी शिक्षण कार्य में बाधा उत्पन्न करती है।

समाज एवं शिक्षण संस्थाओं में तकनीकी का आगमन एवं उपयोग एक अनुभाविक प्रक्रिया है जो निरंतर जारी रहेंगी। शिक्षण कार्य में आधुनिक तकनीकी का उपयोग शिक्षक द्वारा उसके विद्यार्थियों को ज्ञान में वृद्धि के साथ तकनीक समर्थ एवं सक्षम बनाना है। आधुनिक तकनीक का उपयोग कर विद्यार्थी शोध कार्य, समंको का विश्लेषण, उत्पाद की डिजाईन एवं समस्याओं को समझकर उनका निराकरण कर सकते है। विद्यार्थी एक दूसरे के सहयोग से नए ज्ञान की चर्चा एवं

संरचना एवं समझ विकसित कर सकते है। शिक्षको को आधुनिक तकनीक को शिक्षण में सम्मिलित करने की अभ्यास विकसित करना जरूरी है। जिससे कि विद्यार्थी प्रभावी तरीके से विषय को समझ सके।

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The Effect of Modern Educational Technology and Tools on Education

Dr Yogendra Singh Chouhan[1] , Deependra Tiwari[2] , Dr S R Dawar[1]

[1]Government P G College Khargone,
[2]Government Swami Vivekanand College Teonthar (M.P) India.

Abstract

Today's youth have unprecedented access to modern technology and use them in expected and unexpected ways. Youth spend many hours a day using the technology, and most of them have access to Internet, cell phones, smart phone, video games and many more. Recent evidence raises concern about effects on academic performance.Pedagogy and teaching have evolved dramatically in the last few decades. Gone are the days when students had to sit passively and just listen (or, better said, space out) while their teacher gave long lectures. New teaching methods have been integrated into physical and virtual classrooms, significantly **improving the learning experience and** knowledgeretention**.**

Kye ward:-modern education technology, technology tools, quality aspects

Introduction

In our lifeeducation is the most powerful weapon we can use to change the world and for self-enlightenment. This is so because quality education equips one with capability to interpret things rightly and applying the gathered information in real life scenarios. Quality education entails the following aspects; learning resources, technology, program enrolled, modules done, lecturing methodology, attachments, qualifications, co-curricular activities, performance awards,

students, and lecturers' perspective in the institution operating management also their opinions and appraisal toward education (Hammond, 2013). The purpose of education has been and always will be to empower and impart skill and knowledge in leaners, thus it is important that the education one gets must be of certain quality. Quality in education is important given the fact that what a person learns affects their philosophy "mind-set. Thus, saying that the education one gets affects their day to day lives depicting their lifestyle and the decisions they make on daily basis. Psychologically, learning is said to have occurred if there has been a change in behaviour of a subject, meaning that a person acclimatizes to what being taught.

Modern Educational Technology

What is Modern Education Technology? Modern education technology is a new branch of education, based on modern teaching theory as a guide and science and technology as a means, scientifically integrating teaching process and learning resources, the theory and practice of achieving the purpose of teaching optimization. Modern education technology emphasizes the improvement of traditional teaching methods and teaching skills, pay attention to the rational use of teaching media in the teaching process, optimize the teaching process, and thus improve the quality of education and teaching. The scientific application of modern educational technology in practical teaching has made great changes in teaching communication methods, teaching content presentation methods, teaching methods and teaching organization forms, and has led to fundamental changes in the related educational concepts, educational system and so on, breaking the traditional education model, pooling a new era of breath into the entire education and teaching process.

The Influence of Modern Educational Technology on Education.

1. The high efficiency and high quality of modern educational technology in information storage, transmission and presentation can make the learners in different places communicate with teachers through the Internet and through satellite transmission and interactive TV. The traditional class teaching system model, teaching activities and teaching organization produce a fundamental change.
2. Modern educational technology can take scattered teaching content and teaching examples together and form a system to optimize the teaching content and teaching process, and then improve teaching efficiency and teaching quality.
3. Modern educational technology using media tools to simulate the reality, to solve abstract teaching content in the traditional teaching process, making the whole learner in

   learning process has a strong intuitive and self-operation, conducive to learners to carry out image understanding analysis, so that learners in their learning process tends to take the initiative, in a dominant position.
4. Modern educational technology can realize the two-way interaction between teachers and learners in the process of teaching and learning. Learners use their computers to develop their own learning methods according to their own learning habits. Teachers use the specific teaching software to evaluate learners' learning results. It fundamentally realized the

differentiation of learners' learning, and embodied the teaching principles of "teaching students in accordance with their aptitude".

5. Modern educational technology using a variety of modern communication technology for information exchange and transmission, so that modern distance learning become possible. Not limited to time and space, learners can through the network to learn effectively, significantly reducing learning costs.

Modern Teaching Methods

The following teaching methodologies will transform your classroom. Integrate as many as possible to create transformative learning experiences for your students.

Flipped Classroom :- Let's start with the most popular modern teaching technique. Traditional teaching methods instruct that learners are introduced to the subject in the classroom first, then study independently at home.In a flipped classroom, students first learn about the subject on their own, then come to the classroom to resolve questions and practice with a collaborative project or another activity that fits the scope of the subject.

This method helps students have an active role and develop more autonomy in their learning. Instead of relying on the teacher to introduce them to the subject and do all the heavy lifting for them, students become their own teachers!

Tactile Learning: -Also known as kinesthetic learning, tactile learning takes place through demonstrations and hands-on activities. This teaching method also applies to online classrooms, with the teacher demonstrating an activity and learners practicing simultaneously from their homes. It's best suited for practical subjects and skills where learners need to develop dexterity or construct things.The term tactile learning refers to active and collaborative learning. By working at the same pace as the teacher, mistakes can be spotted and corrected immediately, preventing the learner from developing a wrong technique.

VAK Learning: - VAK learning is broader than the above-mentioned tactile method, as it involves all three different types of learners: visual, auditory, and kinesthetic.Visual learners absorb information better when they view the material (textbooks, presentations, infographics, diagrams, charts), Auditory learners when they hear it (podcasts, videos, discussions), and Kinesthetic learners as they act out the content.VAK learning has something for

everyone – by using different types of learning material, you can be sure your students will always anticipate what's coming next!

Project-Based Learning :- In project-based learning, the teacher assigns a practical or theoretical project, and students must work to materialize the project. Projects aim to solve real-life problems and not abstract ones.You can assign projects individually or in small teams. Whatever the case, working on a project is the best example of active learning. It enhances creativity and problem-solving and invites students to think practically.

Problem-Based Learning :- While problem-based learning is similar to project-based learning, it differs in that the problem is presented before anything else is taught.Learners work together or separately to decide on the best course of action to complete the project. In problem-based learning, the difficulty level gradually increases as we move from basic knowledge and initial discovery to more advanced projects.

Collaborative Learning :- Collaborative learning is an umbrella term that includes any project or activity that learners work together on. A lesson plan based on collaborative learning helps build valuable soft skills like teamwork, delegation, time management, collaboration, decision-making, and social skills.Through collaborative activities, learners also start to work on their self-awareness, as they need to evaluate their strengths and choose their part in the project depending on their skills. The fact that all group members are accountable for the outcome teaches them how their actions can affect the whole group as well.

Cooperative Learning:-This learning method is similar to collaborative learning. The teacher organizes students into small groups, assigning each member a specific role and task to carry out. In cooperative learning, students have a common goal to reach – alongside, they learn to collaborate, take responsibility, and develop team spirit.

Game-Based Learning :- Game-based learning is pretty much what the term describes – using games as part of the instruction process. Games have an element of active learning and are particularly engaging as they are a sort of **"**distraction**"** of their own from typical learning. The online, group, or role-playing games can all be part of the syllabus. Games automatically make the learning environment entertaining, and learning becomes an adventure.

By definition, games usually involve a sense of reward and accomplishment, which is why they can be very motivating for learners. Similar to game-based learning is gamification, which involves game mechanics -and not necessarily actual games- like scores, levels, badges, and leaderboards.

Inquiry-Based Learning:-Inquiry-based learning is a popular learning approach in modern education. Usually, the teacher asks an open-ended question or assigns a project, and learners do their own research to complete the project or form a theory. Students can complete these activities either individually or in small groups. The teacher can provide the learners with the investigation method they should work with or let learners figure it out on their own. Or, it can all start from zero, with students coming up with the question themselves and working on the solution on their own.

Inquiry-based learning develops essential analytical and reasoning skills and curiosity. Students learn to be resourceful and observant. On a secondary level, this approach is also effective in enhancing communication and presentation skills.

Thinking-Based Learning :- Thinking-based learning can (and should) be combined with all teaching styles as it's a "complementary" type of learning. A thinking-based activity is asking deeper questions and "challenging" the truth of a given fact. Thinking-based learning can also come in the form of self-reflection after completing a project. The teacher prompts learners to identify what went right and what went wrong in their methodology and what they could have done instead. This teaching strategy enhances critical thinking, analytical thinking skills, and self-awareness.

Competency-Based Learning:-Competency-based learning can also be used in conjunction with other methods. In competency-based learning, teachers use learner assessments and hands-on projects to confirm the learner has achieved the desired learning objectives and is fit to move on to a more advanced level of difficulty. Competency-based learning is, by default, personalized. The course curriculum is not pre-determined; it's continuously adjusting depending on the student's performance. Competency-based learning supports deep learning – learner assessment doesn't measure whether the learner has memorized facts but whether they can actually put their knowledge into action.

Independent Learning: -In independent learning, students are in full control of their learning, from choosing what they'll learn and how they'll learn to evaluate themselves. The teacher can

still be a part of this process, but their role changes to that of a facilitator. They can support the student by giving them learning material and feedback on their progress.

Benefits of Modern Teaching Methods: -

Now that we've discussed the top modern teaching methodologies, let's see how they work together to help learners.

Active Learning:-Modern teaching is **activity-based** and creates highly interactive learning experiences. Active learning is known to be not only more engaging – fascinating, even – but it doesn't even begin to compare with passive learning in terms of effectiveness.

In the words of the famous proverb, "Tell me and I forget, teach me and I may remember, involve me and I learn."When students are actively involved in the learning process, whether it is through a discussion or a hands-on project, when they solve real-world problems and not memorizing facts and terms without context, they internalize the information with significantly less effort and for longer.

Soft Skills :- Modern teaching also promotes essential **soft skills**, moving away from the narrow concept of education that focuses on technical skills. Critical thinking, problem-solving, teamwork, and many more character traits and competencies are developed naturally in the process and help students discover themselves and work with their strengths and weaknesses.

Personalization: - Modern teaching methods are **flexible** and offer different options for different learning styles and unique student needs, like those of learners with disabilities. Learners can learn at their own pace and with the material they like best.

Deep Learning: - A natural byproduct of active learning is deep learning. When students are actively involved in the learning process, exploring and discovering things on their own, not only they are more engaged and excited. They're also truly learning because they've acquired this new knowledge **by doing and not by witnessing.**

Conclusion: -

In the development of students' quality, some aspects of quality such as professional skills, professional knowledge and skills, is to adapt to the students' requirement after graduation and take part in jobs, with the recent benefits. While other qualities such as moral standards, scientific and cultural foundation, professionalism, good health and good psychological quality and strong

self-development ability, with long-term effect. Modern education technology can improve students' ability of autonomous learning and practical ability, for students to take the initiative to continue their own education, lay the foundation for lifelong education, is a useful means for life. In short, modern educational technology plays an important role in all aspects of quality education, which has had a profound impact on the economy, politics, culture and way of life in modern society, which has made great changes in our educational system. Therefore, in order to truly achieve quality education, we should be flexible in the education process of using modern educational technology, and should pay attention to in-depth study on modern education technology.

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Using ICT for Teaching English Language and Literature to Promote Active Learning

Dr. Ranjita Patidar , Assistant Professor Of English
Govt PG College Khargone

Abstract :
21 st century witnessed revolutionary innovations in all spheres of life including Education. Teaching learning process is entirely transformed in the present scenario. In this research paper Innovative teaching learning strategies for English Language and Literature are being explored.Using new techniques will result in grasping the content in feasible and interesting ways through games, activities and ICT.
Keywords : Information Technology, ICT Tools, Google Classroom

ICT has become a part and parcel of our life. It will not be an exaggeration if we call today's world the world of information technology.It has ushered a revolution in almost all spheres of human knowledge and action. In the ancient education system of India known as 'Gurukul Shiksha Paddhati' students resided in the close surroundings with their mentors and imbibed knowledge through various traditional ways. With the passage of time, the education system got significant alterations. Gurukuls were replaced with schools and colleges. Various traditional teaching methods viz using black boards,reciting books, delivering lectures etc are used in schools and colleges.

Recently, the 21st century witnessed a crucial pandemic time. This great time of despair could not create a hindrance in teaching learning for long. Use of ICT heralded a new era of online teaching and learning. What was used in difficult times became good forever. Language is the medium of learning everything.Whatever we learn, we learn through language. Being a global language, English is the foundation of all learning.Teaching English Language and Literature has not been very feasible for teachers in India. Teaching a foreign language and its literature in an interesting way pose a number of challenges for teachers. Use of ICT helps to a great extent in order to attain these goals.

ICT tools for teaching and learning cover everything from digital infrastructures such as printers, computers, laptops, tablets, tablets, etc. to software tools such as Google Meet, Google

Spreadsheets, etc.Teaching is never a one way process. The task of the teacher never ends with teaching only. . The ultimate aim of teaching is to convey the concepts to the learner. There are various ICT tools namely Constructive tools ,Co-constructive tools, Communicative tools, Information tools and situating tools etc. tools, Co- constructive tools can be understood as a tool that can be used to construct knowledge collaboratively. One example of the co-constructive tool is the use of 'electronic whiteboard where students may post notices to a shared whiteboard. In schools students and teachers can use these tools to construct shared understanding of new knowledge. The difference that a co-constructive tool has from a constructive tool is that in co-constructive, the users develop their understanding collaboratively unlike constructive tools where the users work independently to construct personal knowledge.

ICT Tools for ELT:

English Language Lab: LSRW technique is effective for proper learning of a language. To obtain proper accent, tone and pronunciation, English Language Lab is an effective tool. Reading, pronunciation, vocabulary and Grammar exercises are taught to the students. There is audio lingual equipment used in order to facilitate the students with listening exercises. Students can listen to their pronunciation and check their accuracy themselves. There are assignments and evaluation exercises. Pronouncing words in a foreign language or second language is not so easy. There are recorded lectures to teach the students the right way of pronouncing English words. They know whether the word is nasal, palatal,labial or bilabial.Through listening exercises students are taught reading and speaking English with accurate accent, tone and fluency.Active learning is enhanced as the students learn by doing. Instructors can have an eye on the activities and progress of students.In English Language Lab all systems are connected with a master computer.

Learning Language through Games: Learning a language is not always a difficult task. It may be learnt with fun. If an English teacher intends to teach students in an interesting way he can opt for “Learn with Fun”. Nevertheless, learning language through games is a peerless method to transform one’s class in an activity room. Using ICT a number of games can be played in the classroom to enhance students' language proficiency. Some of them are- Charades,Bingo, Pictionary, Matching game, Spaceman, Name that Item etc.

JAM Activity: Just A Minute (JAM) Sessions are one-minute extempore speeches. Here, the student is presented with a topic on the podium and is given 10–30 seconds to think about it and assimilate all their ideas. After the thinking period is over, the individual is given a minute to express their views on that particular topic.

English Language and Cinema: Nowadays, a number of movies are available in multiple languages. Watching the English version of a movie may help a lot. Watching a movie with subtitlescan be great language-learning tools because one can hear the words spoken in the language you're learning as one reads them on the screen. This helps not just with vocabulary, but with pronunciation. With modern technology, one can even rewind the movie to watch/listen to key lines one wants to learn repeatedly.

Google Classroom: By creating Google Classroom it becomes quite feasible to share notes , lessons, quizzes and learning material with the students. When actual classroom activities are not possible to conduct, Google Classrooms provide teachers and students with the best of facilities. Teachers can share text with the students. He may evaluate the students by assigning the students exercises. Likewise grammar and vocabulary topics can be taught through this tool. After teaching rules the students may be asked to transform sentences. Tenses, voice, narration, preposition, subject verb agreement etc topics may be taught very feasibly. In this way students will learn actively.

In nutshell, modern technology provides a number of innovative techniques to teach language and literature in interesting ways. It also enhances active learning on part of students.

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शिक्षा के विकास में आधुनिक तकनीकी का प्रभाव

डॉ. सावित्री भगोरे
सहा. प्राध्यापक (वाणिज्य संकाय)
शास.स्ना. महाविद्यालय खरगोन

प्रस्तावना

शिक्षा के क्षेत्र में दिन प्रतिदिन नए अनुसंधान किया जा रहे हैं ,जिसका मुख्य मकसद है। बेहतर शिक्षा समाज और देश के सर्वांगीण विकास की परिकल्पना को तब तक मूर्त रूप नहीं दिया जा सकता जब तक कि उसे देश की शिक्षा व्यवस्था मजबूत ना हो। शिक्षक प्रशिक्षण व्यवस्था को सहज सरल रोचक तथा सुचारू बनाने के लिए शिक्षा के क्षेत्र में आधुनिक तकनीक का प्रयोग किया जाना वर्तमान समय की मांग है | किंतु यह भी संभव है जब देश के कोने-कोने में तकनीक सुविधा उपलब्ध हो जब पर्याप्त मात्रा में कुशल आधुनिक तकनीक से सुसज्जित शिक्षक शिक्षक होंगे अभिगमन प्रक्रिया को प्रभावी बनाने के लिए प्रशिक्षण की आधुनिक तकनीक की ट्रेनिंग और पर्याप्त संसाधनों की आवश्यकता है।

महत्वपूर्ण शब्द तकनीक की शिक्षा, उच्च शिक्षा, स्मार्ट क्लासरूम, शिक्षण-प्रशिक्षण।

परिचय

वर्तमान समय में शिक्षा ही विकास की महत्वपूर्ण कुंजी हो गई है। युवाओं के लिए बेहतर रोजगार हो या उनकी व्यावसायिक गतिविधियों को विकसित करने के लिए उच्च स्तरीय शिक्षा की आवश्यकता होती है। आधुनिक तकनीकी के विकास में इसकी प्रासंगिकता को और भी विस्तृत बना दिया गया है |आधुनिक तकनीकी के प्रचार प्रसार तथा सूचना संचार के क्षेत्र में क्रांति से यह निश्चित हो गया है कि भविष्य में हमें शिक्षा के क्षेत्र में कुशल प्रशिक्षक व तकनीकी से अभी प्रेरित शिक्षकों की आवश्यकता होगी ऐसा माना गया है कि भविष्य की नीव वर्तमान में होती है। यानी कि बेहतर भविष्य के लिए वर्तमान समय को मजबूत बनाने की जरूरत है वर्तमान की योजनाओं के सफल क्रियान्वयन से हम भविष्य को कुछ हद तक नियंत्रित और नियोजित कर सकते हैं। आने वाले

समय में सुदृढ़ तथा गुणवत्ता परक शिक्षा व्यवस्था प्रदान करने के लिए वर्तमान शैक्षणिक व्यवस्था में व्यापक रूप से परिवर्तन की जरूरत है। हमें विश्व स्तर पर हो रहे शिक्षक बदलाव के साथ अपने शिक्षा के स्तर में भी सुधार करने की आवश्यकता है यह कार्य तक आधुनिक तकनीकी से शिक्षित कर पर्याप्त संसाधनों को मुहाना कराकर सुगमता से किया जा सकता है ।

अध्ययन के उद्देश्य

1. वर्तमान समय में पुरातन शिक्षण प्रक्रिया कितनी उपयोगी है?

2. शिक्षण व्यवस्था में आधुनिक तकनीकी के प्रयोग से क्या सुधार होंगे?

3. अध्ययन में आधुनिक तकनीकी की उपयोगिता व उसके होने वाले प्रभाव का अध्ययन।

4. क्या वर्तमान में शिक्षक आधुनिक शिक्षण व्यवस्था के अनुरूप छात्रों को प्रशिक्षण प्रदान करते हैं?

अध्ययन की महत्ता

पुरानी शिक्षा व्यवस्था के विपरीत बदलते हुए समय के साथ शिक्षा का स्वरूप भी काफी हद तक बदलाव की आवश्यकता को महसूस कर रहा है। अध्ययन अध्यापन के इस बदलते परिवेश में शिक्षक तभी प्रभावी रूप से ज्ञान दे पाएंगे जब वह खुद आधुनिक (नवीन) तकनीकी शिक्षा में कुशल रूप से परिपक्व होंगे।

तकनीकी विकास के साथ ही शिक्षकों के भूमिका में निरंतर ही बदलाव महसूस किया जा रहा है। अध्ययन के क्षेत्र में अब शिक्षक के साथ अन्य तकनीकी माध्यम भी ज्ञान के स्रोत के रूप में छात्रों के लिए उपलब्ध है। ऐसे समय में छात्रों को उत्प्रेरक के रूप में शिक्षक की नई तकनीकी वीडियो से परिचित और प्रशिक्षित शिक्षकों की जरूरत है।

वर्तमान समय में शिक्षा के क्षेत्र में आधुनिक तकनीकी, इंटरनेट, ई लर्निंग, सेटेलाइट द्वारा शिक्षक की सुविधा जैसे बहुत ही प्रकार के शिक्षक विधाओं का प्रचलन है। स्मार्ट क्लास की परियोजना अब हमें कई शिक्षण संस्थानों में दिखाई देने लगी है। क्लासरूम ही ऐसी जगह होती है जहां शिक्षण

प्रक्रिया अपने वास्तविक स्वरूप में छात्रों को मनोमस्तिष्क में अपना स्थान ग्रहण करती है। पुरातन शिक्षण प्रक्रिया के साथ यदि आधुनिक तकनीक का समायोजन भी क्लासरूम में छात्रों को उपलब्ध हो तो उनके प्रभावशील परिणाम निकट भविष्य में हमें देखने को मिल सकता है ।कंप्यूटर, डिजिटल कीबोर्ड, डिजिटल डिसप्ले, ऑनलाइन शिक्षण, ऑनलाइन स्टडी मैटेरियल के साथ व्हाइट बोर्ड भी क्लासरूम शिक्षा को प्रभावशाली बनाने में सहायक हो सकते हैं ।

निष्कर्ष

उच्च शिक्षण संस्थानों में सरकारी संस्थानों में शिक्षक प्रशिक्षण से संबंधित पाठ्यक्रमों में आधुनिक तकनीकी प्रयोग अब होने लगा है। पुराने समय से प्रचलित पाठ्यक्रम वर्तमान शिक्षण व्यवस्था के अनुरूप नहीं है। वर्तमान समय में शिक्षा, शिक्षक आधारित न होकर छात्र के आवश्यकता पर आधारित हो गई है। छात्र भिन्न-भिन्न प्रकार की सूचनाओं की खोज में तरह-तरह के नए तकनीकी का सहारा लेते हैं । जिसमें इंटरनेट का प्रयोग सर्वाधिक स्तर पर होता है। इंटरनेट विभिन्न तत्व एवं आंकड़ों की खोज तथा ज्ञान अर्जन में सहायक है। ई लर्निंग तथा वर्चुअल क्लासरूम छात्रों के लिए वरदान साबित हो सकते हैं।

सुझाव

1. शिक्षण संस्थानों में शिक्षकों की नियुक्ति से पहले उन्हें आनुमानिक तकनीकी के शिक्षा में प्रयोग पर अभिवृत्ति का अध्ययन किया जा सकता है ।

2. ग्रामीण तथा शहरी क्षेत्र में स्थित विद्यालयों में शिक्षण में प्रयुक्त हो रही तकनीकियों तथा उनकी प्रभावशीलता का अध्ययन किया जा सकता है।

3. समय-समय पर सभी शिक्षकों के लिए तकनीकी के विकास और उसकी महत्ता प्रशिक्षण की व्यवस्था होनी चाहिए।

4. स्कूलों में तकनीकी यंत्रों की पर्याप्त सुविधा होनी चाहिए ।

सारांश

आधुनिक टेक्नोलॉजी और इंटरनेट के विकास ने शिक्षा और शिक्षण व्यवस्था को बहुत ही सरल और सुगम बना दिया है। आधुनिक तकनीकी के तमाम विधाओं से छात्रों को कठिन से कठिन विषयों को समझने में सहजता का अनुभव होने लगा है। आज विद्यार्थियों को किसी भी प्रकार की जानकारी हासिल करने के लिए शिक्षक का इंतजार करने की आवश्यकता नहीं है, बल्कि वह बिना समय गवाये विभिन्न तकनीकी सुविधाओं का प्रयोग करते हुए तात्कालिक रूप से अपनी समस्या का समाधान निकाल सकता है। तकनीकी के प्रचार प्रसार से बेहद कम समय में युवा वर्ग रोजगार पर बनाया जा सकता है । शिक्षा प्रणाली की उत्कृष्टता समान रूप से बनाए रखने के लिए हमें अंतरराष्ट्रीय स्तर विशेषत: ग्रामीणअविकसित इलाकों में आधुनिक तकनीकी के विभिन्न संसाधनों को उपलब्ध कराने के सार्थक प्रयास किए जाने चाहिए । विकास की सोच को साकार रूप प्रदान करने के लिए शिक्षा और शिक्षण में आधुनिक तकनीकी का उपयोग अति आवश्यक है ।

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The Imperatives of Information and Communication Technology for Teachers in Higher Education

Ms. Pranita Gupta[1], Dr. Arvind Sanvlia[2]

[1]Assistant Professor, [2]Faculty of Mathematics
Govt. P. G. College, Khargone, M.P., India

ABSTRACT

The purpose of this study was to determine the effectiveness of Information and Communication Technology (ICT) as compared to the traditional method of teaching in the subject of mathematics. ICT as a teaching strategy was more effective against traditional method of teaching in overall and in individual cases as well. On the basis of the findings of this study, ICT might be introduced as a separate discipline in the curriculum of the primary level. For students to become more familiar with the use of ICT, the libraries in the educational institutions might be converted to on-line libraries. To educate students in the field of technology, the vital role of teachers might become more effective by giving them in-service and before-service training for using technology. Overall it increases their motivation and performance; it encourages lifelong learning; and it facilitates positive interactions and relationships. Technical support should also be a concern, so as to motivate educators to apply elements of ICT in their teaching.

Keywords: ICT, Teaching, Learning, Multimedia, Methodology, Pedagogy.

INTRODUCTION

The teaching and learning are closely inter linked and each learner has the right to choose his own path instead of being made to fit in the traditional typed education system, which demands individual attention, initiative and self-education among the learners. Modern approaches encourage the learners to work independently, free to set their own goals, plan their activities and share their opinions with teachers freely. The teachers in this study also completed a course on using multi-media in project-based learning.

Information Communication Technology (ICT) is the major factor in shaping the new global economy and producing quick changes in society. Its scope and coverage is unprecedented in human civilization due to the access to information, communication, knowledge and entertainment. The new ICT tools have changed the ways the people used to communicate

resulting in significant transformation in industry, agriculture, medicine, business, engineering, and other fields. To enhance the use of computers in schools and to achieve the required educational goals, computers can be installed in individual classrooms, in central computer labs, libraries, and teachers planning room, or moved from room to room on mobile carts, depending on the requirements and resources available in the schools.

Technologies also offer a challenge to the teaching and learning of science and to the models of scientific practice teachers and learners might encounter. ICT for example, offer a range of different tools for use in science activity, including; Tools for data capture, processing and interpretation-data logging systems, databases and spreadsheets, graphing tools and modeling environments, Multimedia software for simulation of processing and carrying out virtual experiments, Information systems, Publishing and presentations tools, Digital recording equipment, Computer projection technology, Computer controlled microscope. These forms of ICT can enhance both practical and theoretical aspects of science teaching and learning etc.

Mathematics, Economics and Statistics all are the numerical and calculation part of man's life and knowledge. It helps to give exact interpretation to his ideas and conclusions. It deals with quantitative facts and relationships as well as with problems involving space and form. It also deals with relationship between magnitudes. Mathematics studies order abstracted from the particular objects and phenomena, which exhibit it, and in a generalized form.

METHODOLOGY

To determine the effectiveness of Information and Communication Technology (ICT) on the academic achievement of students in mathematics at higher level as compared to the traditional method of teaching. The study aimed at investigating the comparative effects of the use of Information and Communication Technology (ICT) with the traditional method of teaching in mathematics at higher level. A set of online applications or services that expand learners' abilities to interact and collaborate with each other in the process of searching, receiving, organizing, and generating educational content. Mobile devices or technologies used for educational purposes that support different aspects of instruction or make new educational activities available.

Type of ICT tools	*Examples*
Educational Networking	Ning, Classroom 2.0, Elgg
Web-Based Learning	Wiki, blog, podcasting, social bookmarking, virtual worlds
Mobile Learning	Smartphone, PDA, GPS (for augmented reality games), interactive response pads
Classroom Equipment	Interactive whiteboard, touch- screen computer, Kiosk

THE BENEFITS OF APPLYING ICT TO LEARNING AND TEACHING

One of the benefits of applying ICT in the teaching is creating interaction among students. The use of technological devices such as graphing calculators encourages interaction among students to share their knowledge and skills. Students shared their work with classmates in discussion sessions with the help of teachers .Indirectly, the communication that occurred among students through the application of technology during the learning process promoted knowledge and information-sharing. Educators acted as facilitators, while the learning process that occurred with the help of technology as a learning tool was student-centered. This supports constructivist learning, which is the construction of students' knowledge. The application of technologies such as the internet further facilitates students' self-exploration, for example using the internet to understand learning concepts.

The application of information technology can also increase students' motivation and interest towards the subject. This was evident when students improved their ability. The use of Microsoft Excel in learning can change students' perceptions of subject. Students are eager to perform tasks with the aid of Excel, and indirectly the learning process becomes meaningful to students.

The application of ICT in learning

Faster content delivery- Increased bandwidth and low bandwidth cost has made real time video streaming easy thus enabling delivery of real-time video classes where students can raise queries and get their doubts cleared instantly.

Preparation of instructional material- ICT can help teachers in creating their educational content with the help of tools like PowerPoint, excel, video editors etc. Teachers can enhance quality of teaching using multiple modes like hypermedia, images, audio, videos, etc which can lead to enhanced learning experience by learners.

Accessibility to multitude of educational resources- Internet based resources provides access to quality resources on all the subjects in the form of e-tutorials, videos, animations, lecture notes, encyclopedias, virtual labs, digital libraries, online simulation software and other learning environments.

Virtual classroom environment- Virtual classroom is an online live environment that allows real time participation and synchronous interaction of educators and learners in the learning activities. This can be made possible with the use of videoconferencing and collaboration software.

Cost effectiveness- Distance learning cuts the costs of in-person classrooms where both the teacher and learner need to travel to a set location in order to start learning. Mass development and distribution of learning material using technology also cuts development costs

Enhanced collaboration- Increased collaboration between peers and teachers can lead to productive interactions that can help in problem solving .people with different backgrounds, skills and orientations can work together in a virtual environment towards a common goal of learning.

Discipline- Learning management systems are open and transparent; every activity is monitored by teacher enabling them to keep vigil on the student's activities. This helps in maintaining discipline during the learning process of the course.

Peer to peer interaction- Information and Communication Technology (ICT) in the Distance Education System: Social media platforms have made it easy and effective to indulge in discussions and sharing of ideas, knowledge leading to formation of learning community.

Self-evaluation- There are online quizzes, assignments, rubrics for the purpose of self-evaluation which can help learner to adjust his learning in coherence with the learning outcome of the course.

Use of ICT based pedagogy in teaching- With the help of technological advancements ICT based learning environment can choose between wide set of pedagogical tools which can lead to effective learning

Computer mediated communication- Use of computers and mobile technology has enabled learners to engage in immediate two way communication in professional, social and educational setting depending upon their choice. The use of CMC can help learners in distance education to exchange their ideas with co-learners as well as teachers.

Feedback- In technology based learning environment, there are options for providing quick feedback during teaching which can lead to formative assessment by the teachers.

Ubiquitous learning.- Taking the advantage of digital content, mobile devices, pervasive components learning can be supported by technology as anytime and anywhere activity without the constraints of time and space.

Scalability- Traditional classroom environment can handle 30-40 students, but online platforms can be scaled to include hundreds and thousands of learners. This is made possible by simultaneous access to resources by use of interactive platforms.

Research.- ICT can be used in research to get updated knowledge about any subject, literature search, data collection, data analysis, research writing, report generations, manuscript submission, collaboration and communication with other researchers etc.

Enhanced quality of teaching- With the advent of global society world class resources, lectures from great scientists, expert lectures are available easily which can enhance the quality of teaching.

Use in administration activities of the institution- ICT can be used for registration, admission, assessment, certificate distribution as most of the institutions providing distance learning education, conduct all the activities online is eliminating the need for physical participation of the learner.

DISADVANTAGES

Lack of teacher-student interaction Learners in distance education system are not directly involved in regular classroom teaching learning process and learning is facilitated by an institution with the help of various media available. It denotes separation of learner and teacher in terms of time and place. Innovation in technology has been real time interactions between teacher and learner easy and fast where learner can provide instant feedback to the teacher, ask questions and get his queries answered at real time.

Lack of support- The learning process in distance education lacks classroom educational experience or face to face interaction between teachers and students, so there is need of adequate continuous support to enable remote learning. Research studies suggest that lack of teacher support leads to high dropout rate and lack of interest in distance learning. Such support may be career counseling, pre admission counseling.

Access to online study materials- Materials like E-learning, mobile learning, video conferencing, library services, information services, assessment etc. Sense of isolation students may also feel isolated from other peers or learners enrolled in the same courses due to lack of interaction. Without peer to peer interaction, distance education programs would serve only as passive mediums for transfer of information. Modern computer mediated communication and use of social media platforms can lead to an increased sense of involvement by enabling one to one communication.

Self-evaluation- Lack of evaluation makes it difficult for learner in distance education to check his progress in achieving educational outcomes. But, the use of self-evaluation tools and rubrics in learning management systems can enable learners to self-evaluate him at any stage to ensure there is learning outcome out of learning activity. Lack of control Inability to control the pace and progress of the course is another challenge in distance education, but technology has led to self-paced learning environment which is learner centric i.e. learner can control speed, time, space of his learning.

Lack of discipline - Another problem with these learning programs is lack of supervision or control of the teacher, but with the use of learning management systems with transparency teacher can have an eye on every activity of the student leading to and increased engagement and discipline.

CONCLUSION

Based on the synthesis of the selected pieces of literature, it was found that the benefits of applying ICT in the teaching include attracting students' interest in learning improving students' performance; encouraging lifelong learning; enabling positive interactive relationships; and supporting constructivist learning. However, several constraints have been faced by mathematics educators in involving ICT in the teaching process. The constraints identified include educators' lack of knowledge about technology; minimal training and learning opportunities around ICT; and limited technical support.

Accordingly, it is proposed that there should be an increase in the amount of training available for teachers concerning the use of computers and the application of ICT for teaching purposes. Technical support is also needed in order to motivate teachers to implement ICT in their teaching. This is required to maintain students' positive perception of learning mathematics. It is also suggested that educators explore in order to determine the appropriate technologies and applications that can be integrated into the mathematics teaching and learning process.

The integration of technology especially ICT in the distance education system is emerging as a tool to bridge all those gaps existing between a learner and content as in the previous generations of distance education system. The present intelligent, flexible mode of distance learning is capable of bringing the distance mode of education at par with the regular mode of education in terms of teaching-learning process. The distance education system has been evolved in such a way that the word distance is fading. The tremendous source of knowledge available in the digital cloud can be extremely instrumental in improving the overall efficiency in the distance education system. The findings from two studies of old and new methods indicate that cooperation among students occurred when they were given the opportunity to present their work with the aid of a projector, a screen and a laser pen.

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"शिक्षा के क्षेत्र में आधुनिक प्रौद्योगिकी का प्रभाव"

प्रो. मनोज कुमार भार्वे
सहा.प्राध्यापक (समाजशास्त्र)
शासकीय स्नातकोत्तर महाविद्यालय,
खरगोन (म.प्र.)

शोध का सारांश

शिक्षा जीवन का महत्वपूर्ण हिस्सा है और यह समाज में व्यक्ति के विकास और समृद्धि में महत्वपूर्ण भूमिका निभाती है। आधुनिक प्रौद्योगिकी का प्रयोग शिक्षा के क्षेत्र में बदलते परिपेक्ष्य को प्रभावित कर रहा है और शिक्षा प्रक्रिया, पाठ्यक्रम, और शिक्षक-छात्र संबंधों में नए दिशानिर्देश और संभावनाएं पैदा कर रहा है। इस शोध का मुख्य उद्देश्य है आधुनिक प्रौद्योगिकी के शिक्षा क्षेत्र में प्रयोग के प्रभाव को विश्लेषण करना, और यह समझना कि यह प्रभाव शिक्षा के अलग-अलग पहलुओं पर कैसे प्रभावित हो रहा है।

शब्द कुंजी:

शिक्षा (Education),प्रौद्योगिकी (Technology), शिक्षा प्रौद्योगिकी (Educational Technology), डिजिटल शिक्षा (Digital Education), शिक्षा प्रक्रिया (Educational Process), छात्र-शिक्षक संबंध (Teacher-Student Relationship), ऑनलाइन शिक्षा (Online Education), शिक्षा साधना (Pedagogy), शिक्षा प्राप्रोद (E-learning), शिक्षा संसाधन (Educational Resources)

आधुनिक युग में प्रौद्योगिकी का अद्वितीय रूप से विकास हो रहा है और इसका शिक्षा के क्षेत्र में भी महत्वपूर्ण प्रभाव पड़ रहा है। आजकल की शिक्षा प्रणालियों में आधुनिक प्रौद्योगिकी के उपयोग से शिक्षार्थियों को एक नई दिशा मिल रही है और शिक्षकों को भी नई शिक्षा देने के तरीके विकसित करने का अवसर मिल रहा है।

प्रौद्योगिकी ने विद्यार्थियों के शिक्षा में विभिन्न सुविधाएँ प्रदान की हैं। वर्चुअल लर्निंग प्लेटफ़ॉर्म्स, वेबिनार, ऑनलाइन कक्षाएं आदि के माध्यम से छात्र अपने आवश्यकतानुसार पढ़ाई कर

सकते हैं। यह उन्हें समय और स्थान की बाधा से मुक्त करके अध्ययन करने का अवसर प्रदान करता है। साथ ही, शिक्षक भी ऑनलाइन शिक्षा सामग्री तैयार करने और छात्रों के साथ दूरस्थ शिक्षा करने के नए तरीके विकसित कर सकते हैं।

प्रौद्योगिकी के प्रयोग से शिक्षा की गुणवत्ता में भी सुधार हो रहा है। शैक्षिक ऐप्स, गेमिफिकेशन, ऑनलाइन टेस्टिंग प्लेटफ़ॉर्म्स आदि के माध्यम से विभिन्न शैक्षिक सामग्री को रोचक और प्रेरणादायक बनाया जा सकता है, जिससे छात्रों का रुचान बढ़ता है और उनका अध्ययन आकर्षक बनता है।

हालांकि प्रौद्योगिकी के प्रयोग से अनेक लाभ हैं, वे चुनौतियों को भी साथ लेते हैं। डिजिटल विभाजन के कारण शिक्षार्थियों का सामाजिक संवादन और सहयोग कम हो सकता है। शिक्षकों को नई प्रौद्योगिकियों का सही तरीके से प्रयोग करने की आवश्यकता होती है ताकि छात्रों को सही दिशा में नाविगेट किया जा सके।

समापन रूप से, आधुनिक प्रौद्योगिकी ने शिक्षा के क्षेत्र में गहरा प्रभाव डाला है। यह छात्रों को नए अवसर प्रदान करता है, शिक्षकों को नए तरीके सिखाने का मौका देता है, और शिक्षा की गुणवत्ता में सुधार करता है। हालांकि इसके साथ ही, इसकी सही तरीके से उपयोग करने की आवश्यकता है ताकि हम शिक्षा के क्षेत्र में आधुनिक प्रौद्योगिकी के लाभों का सही तरीके से उपयोग कर सकें।

आधुनिक प्रौद्योगिकी के विकास ने शिक्षा के क्षेत्र में भी गहरे परिवर्तन का कारण बना है। इसका प्रभाव शिक्षा के प्रतिस्पर्धी और यथासम्भाव बनाने के प्रयासों में दिखाई देता है और छात्रों को विश्वसनीयता से संबंधित और तकनीकी दुनिया में तैयार करने में मदद करता है।
प्रौद्योगिकी ने शिक्षा की पहुँच में वृद्धि की है। डिजिटल शिक्षा के साथ, छात्र अब अपने घरों से ही विभिन्न शिक्षा संसाधनों और वीडियो पाठ्यक्रमों का उपयोग करके पढ़ाई कर सकते हैं। यह उनके समय और श्रम की बचत करता है और उन्हें स्वतंत्रता देता है कि वे कब और कैसे पढ़ना चाहते हैं।

विद्यार्थियों के लिए प्रौद्योगिकी एक महत्वपूर्ण साधना है जो उनकी सूचना प्राप्ति क्षमताओं को विकसित करने में मदद करती है। इंटरैक्टिव शिक्षा सॉफ़्टवेयर, ऑनलाइन शिक्षा प्लेटफ़ॉर्म, व्यावसायिक सिमुलेशन आदि के माध्यम से छात्र अब अधिक संलग्न और समझदारी से पढ़ सकते हैं। शिक्षकों के लिए भी प्रौद्योगिकी एक महत्वपूर्ण उपकरण है। वे अब ऑनलाइन शिक्षा सामग्री बना सकते हैं, वर्चुअल क्लासरूम में पाठ दे सकते हैं और छात्रों की प्रगति को ट्रैक कर सकते हैं।

हालांकि, आधुनिक प्रौद्योगिकी का प्रभाव निरंतर बढ़ रहा है, यह कुछ चुनौतियों को भी साथ लाता है। डिजिटल विभाजन और तकनीकी समस्याएँ उत्पन्न हो सकती हैं। साथ ही, शिक्षा की मानवीय मिलनसरता का पहलु भी खो सकता है।

समार्थन में, आधुनिक प्रौद्योगिकी ने शिक्षा के क्षेत्र में आदिकाल से अद्वितीय परिवर्तन किया है। यह छात्रों और शिक्षकों दोनों के लिए एक नई दुनिया का द्वार खोलता है, जिसमें शिक्षा अब और भी सुविधाजनक, संरचनित और अनुकूलनशील हो सकती है।

<u>सन्दर्भ ग्रन्थ सूचि</u>

1 विजय अग्रवाल “शैक्षिक प्रौद्योगिकी”

2.रश्मि अग्रवाल “शैक्षिक प्रौद्योगिकी प्रबंधन और मूल्यांकन”

3. onlinedegrees.sandiego.edu

4. https://chat.openai.com/

Learning History with Digital Tools and Techniques

Dr. Kailash Rai

Assistant Professor , History
Govt. P.G. College Khargone
Email : raikailash71@gmail.com

Abstract

History, the narrative of human experience, has been a subject of impression and importance in education. It applies valuable insights into our past, assists us understand the present, and guides us toward a more informed future. However, the methods of teaching and learning history have evolved significantly over the years, thanks to the integration of digital tools and techniques into the educational landscape.

Key Words: Digital, accessibility, personal Learning etc.

The Digital Revolution in Education: The digital revolution has transformed nearly every aspect of our lives, including education. Traditional history classes often relied on textbooks, lectures, and static images to convey historical events. While these methods have their merits, they can sometimes fail to engage students fully. This is where digital tools and techniques come into play.

Digital Tools for Enhanced Learning: Digital tools encompass a wide range of resources, from interactive websites and educational software to immersive virtual reality experiences. These tools offer several advantages in history education:

Visualization: Digital tools enable students to visualize historical events and places. For instance, virtual reality can transport students to ancient civilizations or battlefields, providing a vivid, immersive experience that textbooks cannot replicate.

Interactivity: Interactive timelines and maps allow students to explore historical periods and geographical locations actively. They can click on events, view primary sources, and gain a deeper understanding of context.

Accessibility: Online archives and digitized documents make historical resources more accessible to students. They can access primary sources from around the world, fostering independent research and critical thinking.

Engagement: Gamification techniques, such as historical simulations and games, make learning history enjoyable and engaging. Students can step into the shoes of historical figures, make decisions, and see the consequences.

Techniques for Effective Learning: Digital tools are most effective when integrated into pedagogically sound techniques. Here are some key strategies:

Blended Learning: Combining traditional teaching methods with digital tools creates a balanced approach that capitalizes on the strengths of both.

Critical Thinking: Encourage students to analyze and evaluate historical sources critically. Digital tools can help them fact-check and consider multiple perspectives.

Collaborative Learning: Online platforms facilitate collaboration among students and educators. They can share insights, discuss historical events, and work on projects together.

Personalized Learning: Adaptive learning technologies can tailor history lessons to individual students' needs, helping them grasp complex concepts more effectively.

Benefits and Outcomes: The integration of digital tools and techniques into history education yields numerous benefits. Students become more engaged, retain information better, and develop crucial skills such as digital literacy and research abilities. Moreover, these methods can cater to diverse learning styles and abilities, making history education more inclusive.

Challenges and Considerations: While the advantages are clear, there are challenges to address. These include ensuring access to digital resources for all students, providing training for educators to effectively use these tools, and addressing privacy and security concerns associated with online learning.

Looking Ahead As technology continues to evolve, so will the opportunities for learning history with digital tools and techniques. Emerging technologies like artificial intelligence hold promise for further enhancing history education. It is essential for educators and institutions to stay up-to-date with these developments to provide students with the best possible historical education.

Conclusion : Incorporating digital tools and techniques into history education has revolutionized the way we learn about the past. It not only makes history more accessible but also engages and empowers students to become critical thinkers and active learners. As we move forward, the

synergy between technology and history education will undoubtedly continue to shape a more informed and historically literate society.

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Impact of Modern Technology in the Field of Physical Education

Dr. Gagan Kumar[1] ,Dr. Dharmendra Kumar Singh[2]

[1] Sports Officer, Govt. P.G. College Khargone, M.P., India

[2]Sports Officer, Govt. College Mandleshwar, M.P., India

Abstract

The integration of modern technology into the field of physical education has ushered in a transformative era, redefining how physical activity is taught and experienced. This paper explores the profound impact of technological innovations on physical education, encompassing wearables, mobile applications, and virtual reality. Through an extensive literature review and analysis of case studies, it is evident that technology has revolutionized teaching methods, enhancing student engagement, motivation, and overall health outcomes. Fitness tracking devices and apps have empowered individuals to take charge of their well-being, fostering healthier lifestyles. Virtual reality has injected excitement into physical education, promoting skill development and participation. However, challenges concerning privacy, screen time, and accessibility must be navigated. As we glimpse into the future, technology's role will continue to evolve, promising further innovations such as AI-driven coaching and augmented reality. This paper concludes by emphasizing the vital importance of embracing and adapting to these technological changes to maximize the benefits and potential of physical education in a technology-driven world.

Keywords: Modern technologies, Physical education, Health education.

Introduction

The modern world is characterized by rapid advancements in technology, touching virtually every facet of human existence. In the realm of education, this digital revolution has been particularly pronounced, with technology reshaping pedagogical approaches and learning outcomes. One domain where these transformations are increasingly evident is the field of physical education (PE). In recent years, educators and institutions have recognized the potential

of modern technology to enhance the teaching and practice of physical activities, thus revolutionizing the traditional landscape of PE.

According to Elayaraja and Bhalaji (2016), the integration of technology in PE holds the promise of engaging students in novel ways, personalizing instruction, and improving overall health and fitness outcomes. Wearable fitness devices, mobile applications, and virtual reality (VR) simulations are just a few examples of the innovative tools that have gained traction in this field (Lee, Kim, & Choi, 2017; Sun et al., 2019). These technologies are not merely gadgets but powerful instruments that can redefine how physical education is conceptualized and delivered.

This paper delves into the multifaceted impact of modern technology on physical education. Through a comprehensive exploration of existing literature and the analysis of practical examples, it seeks to elucidate the profound transformations that technology has brought about in the teaching and learning of physical activities. It also addresses the potential challenges and concerns associated with this technological integration and looks ahead to emerging trends that promise to further revolutionize the field. Ultimately, this examination underscores the imperative for educators and policymakers to adapt to this evolving landscape in order to harness the full potential of technology for the betterment of physical education.

Literature Review

Physical education (PE) has long been recognized as an essential component of a holistic education, promoting physical fitness, well-being, and the development of motor skills (Kohl et al., 2012). Over the years, the integration of modern technology into the field of physical education has brought about a paradigm shift, offering innovative approaches to teaching and learning (Webster, 2016). This literature review examines the multifaceted impact of modern technology in PE, including wearable fitness devices, mobile applications, virtual reality (VR), and gamification techniques.

Wearable fitness devices, such as fitness trackers and smartwatches, have gained popularity among individuals seeking to monitor and enhance their physical activity levels (Byrne et al., 2018). These devices provide real-time feedback on metrics like heart rate, step count, and calories burned. In educational settings, wearables offer educators and students a means to quantitatively track progress and set fitness goals (Goh & Tan, 2016). Research indicates that the

use of wearables can improve student motivation and engagement in physical activities (Shi et al., 2018).

Mobile applications, or apps, have become powerful tools for facilitating physical education. Apps offer a versatile platform for delivering instructional content, tracking progress, and promoting physical activity outside the classroom (Lee, Kim, & Choi, 2017). For example, fitness apps provide guided workouts and nutritional information, enhancing students' ability to maintain healthy lifestyles (Sun et al., 2019). Moreover, mobile apps can be customized to accommodate various fitness levels and learning styles, catering to a diverse student population (Cheung, Yuen, & Fok, 2016).

The incorporation of virtual reality into physical education has ushered in new possibilities for immersive learning experiences (Webster & Hadwin, 2015). VR simulations can transport students to diverse environments, allowing them to engage in physically demanding activities that might not be feasible within a traditional classroom setting (Huang et al., 2019). Research suggests that VR enhances student motivation and skill development, making physical education more appealing and effective (Chen, 2020; Tsai et al., 2021).

Modern technologies in physical educatio

Physical Education (PE) has traditionally been associated with physical fitness, sports, and health, with an emphasis on developing students' motor skills and physical well-being (NASPE, 2013). However, the landscape of physical education is undergoing a profound transformation in the digital age, driven by the integration of modern technologies. These technological advancements are reshaping the way physical education is taught and experienced, offering new opportunities for learning, engagement, and personalization (Webster & Fossum, 2019).

In this era of rapid technological progress, it is crucial to examine the role and impact of technologies in physical education. The integration of technology is not limited to using digital tools for data collection and analysis; it also encompasses wearable fitness devices, mobile applications, virtual reality (VR), and gamification techniques. These innovations have the potential to revolutionize how physical education is delivered and to enhance the overall effectiveness of physical activity instruction (Chen & Fan, 2020; Webster & Hadwin, 2015).

Impact on teaching and learning

In the ever-evolving landscape of education, the infusion of modern technologies has ushered in a paradigm shift, redefining how knowledge is imparted and assimilated. This transformation is particularly pronounced in the domain of physical education (PE), where technological advancements have opened up new frontiers in teaching and learning. As we navigate the 21st century, it is imperative to explore the impact of these technologies on the pedagogical landscape of physical education, examining how they enhance instruction, engage students, and ultimately contribute to a more effective and comprehensive educational experience.

Future Trends and Innovations of Technologies in Physical Education

The integration of modern technologies in physical education has already transformed the way students engage with physical activities and acquire essential skills. However, the landscape of physical education continues to evolve, and several exciting future trends and innovations are poised to further enhance the educational experience. This section explores some of the most promising developments in the field of technology-driven physical education.

1. Augmented Reality (AR) in Physical Education

Augmented reality (AR) is expected to play a pivotal role in the future of physical education. AR overlays digital information onto the real world, allowing students to interact with virtual objects and environments in real time (Ko et al., 2021). In physical education, AR can create immersive and interactive experiences, enabling students to visualize and practice complex movements and skills. For instance, students can use AR goggles to interact with virtual coaching assistants, receive real-time feedback, and improve their techniques (Tondello et al., 2020).

2. Artificial Intelligence (AI)-Driven Coaching

Artificial intelligence (AI) is poised to revolutionize coaching and personalization in physical education. AI algorithms can analyze individual students' performance data from wearables and sensors to provide personalized coaching tips and exercise regimens (Loh et al., 2018). AI-driven coaching systems can adapt to students' fitness levels, preferences, and progress, making physical education more effective and tailored to each student's needs.

3. Biometric Feedback Integration

Future technologies in physical education may incorporate advanced biometric feedback systems that provide real-time physiological data during physical activities (Kumar & Byczkowski, 2019). This includes monitoring heart rate, oxygen saturation, and other vital signs. Biometric feedback

can help students optimize their training, ensuring that they exercise within safe and effective intensity ranges.

4. Virtual Physical Education Classrooms

As remote and online learning become more prevalent, virtual physical education classrooms will likely become a norm. These virtual spaces will offer students the opportunity to participate in physical education from anywhere, even in their own homes, through live-streamed classes, interactive simulations, and real-time coaching (Chen et al., 2021). Virtual physical education can provide flexibility while maintaining the educational and fitness benefits of traditional in-person classes.

5. Inclusive and Accessible Technologies

Future trends in technology for physical education will focus on ensuring inclusivity and accessibility. Innovations in adaptive equipment, assistive technologies, and accessible interfaces will empower students of all abilities to participate fully in physical education programs (Webster & Singleton, 2020). Ensuring equitable access to technology-driven physical education is an important goal for the future.

Conclusion

In conclusion, modern technology has had a profound impact on the field of physical education. The integration of wearable fitness devices, mobile applications, and virtual reality has revolutionized teaching methods, increased student engagement, and improved overall health outcomes. While challenges such as privacy concerns and screen time management persist, the future promises even more exciting innovations. As augmented reality, AI-driven coaching, biometric feedback, and virtual classrooms become more integrated into physical education programs, educators and students can look forward to a more dynamic, engaging, and effective learning experience. Embracing and adapting to these technological changes is vital to maximizing the potential of physical education in a technology-driven world.

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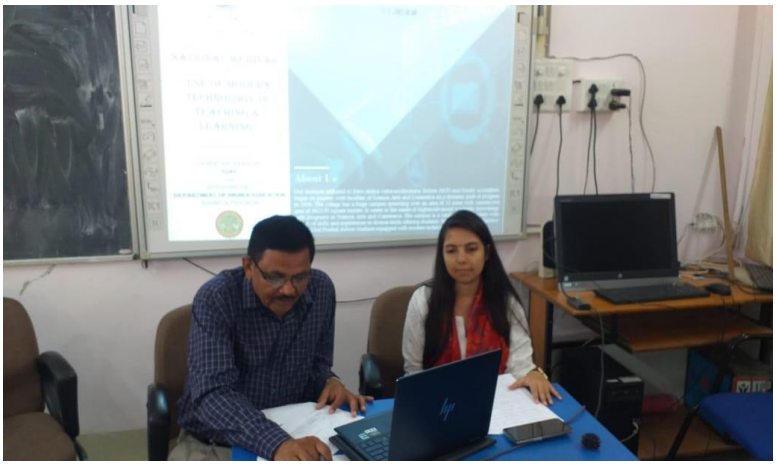

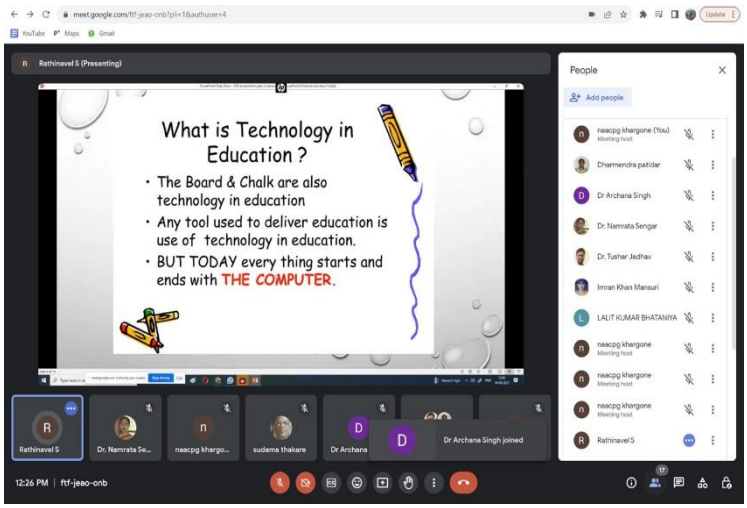
What is Technology in Education ?
The Board & Chalk are also technology in education
Any tool used to deliver education is use of technology in education.
BUT TODAY every thing starts and ends with THE COMPUTER.
People
Dr Archana Singh joined