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ONE DAY NATIONAL WEBINAR

ON RELEVANCE OF TEACHING AND LEARNING THROUGH BLENDED MODE IN HIGHER EDUCATION

24.05.2024

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“We believe in Quality” is the Moto of Govt. College Rau Indore(M.P.).

Govt. College Rau, Indore was founded in 2011 and since then it is persistently growing towards new horizon. The college is accredited 'B' Grade by NAAC and has recently got P.G. in 11 major subjects of Arts, Science & Commerce. The college adopts innovative methods of teaching and learning to improve the quality of higher education on a consistent basis. The college has a beautiful and lush green campus with students of different background studying in Arts, Science & Commerce, with affordable Education. Well experienced and renowned teachers strongly encourage students to nurture their future. It aims at providing quality education relevant with present scenario fostering innovation, leadership Edu and entrepreneurial spirit to students. Our alumni have stood out in varied fields such as business & industry, administrative & regulatory services.

ABOUT WEBINAR

"Education is the manifestation of perfection already in man"

–(Swami Vivekananda)

The most important goal of education is to improve the quality of teaching. The educational system at present is in a transition stage. In today's era, information and knowledge stand out as very important and critical input for growth and survival. There are several modern teaching methods those can be used in teaching and learning. Basically teaching must include two major components sending and receiving information. This can be done by blended learning. Blended learning is also called hybrid or mixed-mode learning. It is an innovative concept which contains the advantages of both traditional teaching in the classroom and ICT supported methods. The method incorporates direct instruction, indirect instruction, collaborative teaching, individual teaching and computer assisted learning. The advantages of blended learning for students include increased learning skills, greater access to information, improved satisfaction, successful learning outcomes and opportunities to learn with others. Blended learning offers a platform to facilitate greater interaction between students and between students and teachers. Therefore the webinar focuses on the effectiveness of Blended Mode of learning in higher education.

The use of innovative methods in educational institutions has the potential to improve and empower people, strengthen governance and to achieve the individual and social development goal for the country.

Dr. D.C. Rathi
Convener –Webinar
IQAC In-charge
Govt. College Rau, Indore

// Introduction of Webinar //

Education is very important parameter in the development of students and society. Therefore, the institutes focusing on higher education should take the responsibility of being better and the best for their learners. The higher education has now been changed with a great innovation. It is the time of ICT. Govt. College Rau has organized one-day webinar on the theme of blended learning. In the present era blended learning is highly useful for the development of higher education. National education policy - 2020 also focuses on digital and online education with 60% classroom teaching and 40% teaching with the help of ICT. So how ICT can be used in higher education is discussed in the webinar. The use of digital techniques in education has helped us a lot during covid era. It is a type of self-paced education system in which students can also put their points in discussion forum. So we should promote these types of hybrid teaching which involves classroom teaching along with digital education. Department of higher education has provided us all the facilities needed for blended teaching such as smart classrooms and virtual labs. In this way the webinar will be providing understanding of different tools and techniques used in blended learning.

Dr. Anil Singh
Patron-Webinar
In-charge Principal
Govt. College Rau, Indore

//Welcome Speech//

Govt. College Rau, Indore welcomes all the honorable invited guest Dr. Dhirendra Shukla, OSD, Department of Higher Education M.P. in this webinar who has worked effortlessly in the amendment of NEP 2020 in higher education system of Madhya Pradesh. We also welcome respected chief patron Dr. Sudha Suresh Silawat Additonal Director Indore Division who is being a constant support for the development of our institute. With her involvement our college has all smart classrooms and an extraordinary infrastructure. We also welcome the two eminent speakers of these webinar Dr. Keval Gadani, Indian Institute of Teacher Education (IITE), Gandhi Nagar, Gujrat, India and Dr. Sanjit Kumar, Associate Professor, Department of Biotechnology, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh. The College also welcomes all the presentors and participants in this webinar. The topic of webinar is "Relevance of Teaching and Learning through Blended Mode in Higher Education". Change is the rule of nature and this rule may also be applied to the education system. As we have seen that education system is changed a lot from the ancient times to the modern era. Therefore, the educators also have to change themselves and for this they should have their own interest. Since if we work with interest the chances of success are increased because of positive energy. With this positivity educators of the new age will be taking education system to new heights. Educationists from all over the world are focusing on improvement in teaching and learning. With the advent of digitalization in education teacher should be trained with the use of ICT techniques. With this view our college has taken the theme of blended learning for this webinar. We hope the webinar will be fruitful to all the participants and the researchers.

Dr. Sudha Suresh Silawat
Additional Director (Indore Div.)
Department of Higher Education

The relevance of teaching and learning through mixed methods in higher education is a very interesting topic.

Blended learning has become increasingly popular in higher education. The integration of ICT in higher education is an innovative process, involving multidimensional variations on curriculum content, pedagogy, methods of ICT use, teacher practice, student practice, student learning outcomes, and organizational conditions. Blended learning approaches in higher education combine the flexibility and convenience of online courses with personal interaction.

Blended learning makes it easier for learners to communicate about their assignments, announcements, test results or anything else. Blended learning makes assessment more personalized and effective. The flexibility of blended learning and the ability to access Internet resources allows students to learn at their own pace.

ICT enables the development of online learning platforms and virtual classrooms. It allows students from different locations, backgrounds and time zones to connect and learn together. It promotes global collaboration and cultural understanding, preparing students for an increasingly interconnected world.

Certainly, blended learning will be the future of higher education. I congratulate the entire team of Government College Rau for organizing a webinar on such a futuristic vision.

Dr. Dhirendra Shukla
OSD
Department of Higher Education Bhopal
(M.P.)

//Blessings//

Webinars are the best and economical way to manage the dispersal of knowledge to large number of people in a shorter time. With this view the Department of Higher Education Madhya Pradesh managed to organized webinars on different themes in around three hundred associated colleges. With the help of webinar our department is now having more than 350 pdf files of research papers and articles on different topics. The souvenirs of these webinars are available on the departmental website. In this way we are now having a great repository of research papers which can be taken by different professors and researchers for reference. The topic chosen for this webinar is wonderful since blended learning is a new method and must be involved in modern teaching and pedagogies. With this new era learners are smart and they require notes and information in digitalized form. It is now important to make students familiar with blended mode of teaching. I also suggest colleges to make an innovation in blended learning with the incorporation of one special lecture of about 45 minutes with 30 minutes of classroom teaching using ICT technique and about 15 minutes of teaching with a resource person, in every subject per week. In this lecture, they should invite some external resource person to guide the student in relevant topic. The resource person may be added online. We can also provide some motivational movies to the students in classroom. It is required to be innovative in educational sector. We have around 65% students with low economic status, so we should work for the skill development of the students. Blended mode is the best method to keep students involved in classes. The webinar is well organized and I hope this will be beneficial for the students.

CONTENTS

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ROLE OF MODERN TECHNOLOGY: NEW ERA OF TEACHING AND LEARNING PEDAGOGY

Dr. Ankita Sharma
Govt. College, Rau, Indore (M.P.)
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Abstract: Modern Technology is God's gift for every learner. As technology has been changing day by day it's also changing the way we live today. This paper proposes a contrast between technologies of learners and technologies of learning to explain how technologies have influenced teaching and learning in and out of schools/colleges. Also many complex and critical problems can be solved easily with the help of modern technology. Every learner feels bored while learning any topic manually but technology has made learning and teaching more enjoyable that learners love to learn new things they think off. Technology has made learning so easy that everyone who loves learning can grab various knowledge, certification, and also learn multiple courses simultaneously.
Keywords: Modern technology, Positive effects of learning new technology, Negative effects of learning new technology, Artificial Intelligence, Blockchain.

INTRODUCTION

What is Modern Technology?

Modern technology is the technology that makes it easier for students to search information quickly and accurately on fingertips. Now-a-days search engines and e-books are replaced by the traditional way of teaching like textbooks. It's a really interesting question when you were wondering about the old days when people bought different reference books and carried a lot of heavy loads to learn new things at that time there was no concept of E-learning (Mohite, 2012). Today, technology is changing so rapidly that in a few years the concept known as virtual learning environments will disappear and new concepts such as e-learning, audio and visual technology and artificial intelligence will emerge.

OBJECTIVE OF THE STUDY

1. To research and analysis of the technologies used in education.
2. To improve the quality of education and improve the learning process.
3. To improve pedagogical transactions anywhere, anytime and to increase learning through various digital tools.
4. To provides teachers with many e-learning tools such as Gamification, AR/VR, smartboards, etc
5. To increase the efficacy of the teaching and learning process in order to fulfil the demands of a rapidly changing era.

LITERATURE REVIEW

Modern technologies have changed how teaching and learning are done in schools, according to a research article by Richard Halverson and Annette Smith,2010. This describes how technology influences teaching and learning both within and outside of schools by drawing a distinction between technologies for learners and technologies for learning.

Technology is God's gift to learners and learning, says Dr. Bhawna's research, 2019. Modern technology makes it easier and more efficient to complete many difficult and important tasks. People used to send letters through the mailman in earlier times, and there was no such thing as online education.

Positive effects of learning new technology:

Today, we know that technology can be used to efficiently teach, learn, develop and improve our strengths. Look around you and you will see that technology is improving education. When people are educated around us, we can use that knowledge to develop society. Apart from social development, it is also essential for personal growth and development.

When we talk about the impact of new technologies on education, the first thing that comes to mind is that almost everyone will have access to unlimited knowledge. Instead of carrying a book count, you can physically carry the books available in online mode. A new technology these days has the ability to download e-books and audio books, giving us a great opportunity to purchase via various technologies. Books are available in a variety of formats including PDF, audio and video formats for students to freely access. The educated world can now fly far higher and quicker than before thanks to technology. Ease of access to large information: As we analyze our environment, we find that most students use internet for their requirements, which is a great platform to access knowledge and learn things in advance. Students and other learners can access a large amount of data at their fingertips, which allows them to learn faster and more effectively.

1. **Enhances learning and facilitates student:** As everything is available on various platforms it enhances the learning process. The entirety of the subject's details is published on several websites, which students can consult if they run into any problems. The best thing is that students may manage their work from anywhere and at any time thanks to modern technology, which makes computers, phones, and pads readily available to every student during class.
2. **Technology enhances creativity:** Rapidly growing technology is changing the way teachers and students think and think. Growing technology increases make students more creative. Example: When students need to give a presentation, they typically use Microsoft PowerPoint, but as they learn new technologies, new websites (such as the Canvas website) that can be used to create creative presentations I learned that there are several. The only problem is that in order for students to be creative, they must be curious about learning new things.

Negative effects of learning new technology:
While there are many positive things about learning technology, there are some negative points too. Some of the negative effects of technology on students are listed below.
1. Decrease social skills and increases laziness: Students become highly thoughtful because there is a lot of material easily available on our online page. When students can grasp knowledge in seconds, they are less likely to learn new things and it can seem like a tedious task. This also encourages laziness. Because students won't use their creativity to do things differently if they know they can easily get the job done at the last minute by just searching online.
2. Can be very distracting: With so many students using technology to their advantage, it is also very easy to distract them. When students spend more time using technology, they become more attracted to, familiar with, and easily accessible such new things (Raja; Nagasubramani,2018). Video game movies and videos on YouTube and other of his websites are also readily available online.
3. Technology affects Health: Health problems are becoming highly prevalent as a result of modern society's continual reliance on technology. It has many effects not only physical health but also mental health. Obesity, impaired eyesight, headaches, reduced blood circulation, poor body posture, and sitting and working in the same location increases weight, which further contributes to problems like heart disease and high blood pressure (Budhwar, 2017). These are the most common negative consequences of technology on our health. The most common mental effects that technology has on our health are depression, distraction, anxiety.

TECHNOLOGY IN FUTURE:
Technology plays a very important role in surviving in the 21st century. Since Covid, technology has proven to be very important especially for the education sector. Learners have recognized the role of the transition to digital during the pandemic, and it suddenly gave them a boost. More than 75% of her learners believe that learning digital content can transform textbook learning, according to schools and teacher training colleges. Several new technological wonders are trending today. Among them are artificial intelligence (AI), learning management systems (LMS), virtual reality, gamification and blockchain.1.

Artificial Intelligence- According to a report published by the e-learning industry, about 50% of learning tools are coupled with artificial intelligence. AI can help with personal coaching. A chatbot for chatting is a perfect combination for learners because teachers don't have time after work.

2. Learning Management System- A platform called a learning management system (LMS) is being created to monitor learners' online learning endeavors. It helps to develop content delivery and educational tools, lectures, and foster communication. Parents can track their child's progress, grades, and assessment data, as well as see how their child is learning.

3. Gamification- A new technique called gamification simulates instructional games and adds visual components to enhance learning. It is clear that when pupils are having fun, they learn more effectively. Engage your pupils using various techniques, such as games, team projects, and scoring.

4. Blockchain Technology- As it digitizes documents by connecting them directly to students, this technology aids students by decreasing the need for facilitators. In order to increase transparency and guarantee that no documents are lost to technology, students utilizing blockchain can also publish their assignments.

CONCLUSION

Technology has positive effects on education and at same time it also has some negative effects.

Every new learner whether it be teacher or student should take advantage of this good light and reduce the drawbacks which are pulls back many students from achieving excellence. Thus, it is time for every country to explore more technologically equipped education sector in the future. As technology has been changing the way people live their lives previously these technologies were used for communication purpose only. Today technology has become integral part of teaching and learning process as it made learning so easy and more fun and interactive.

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UNVEILING THE RELEVANCE OF BLENDED MODE OF TEACHING AND LEARNING IN HIGHER EDUCATION

CA Umesh Kumar Bhavsar
Assistant Professor, Department of Commerc, Government Girls College Sehore

Abstract: Blended learning has emerged as a transformative approach to teaching and learning in higher education, offering a dynamic fusion of traditional classroom instruction with online learning modalities. This paper explores the evolution, characteristics, advantages, challenges, and future implications of blended learning in the context of higher education. Drawing upon a review of relevant literature and case studies, the paper highlights the potential of blended learning to enhance student engagement, personalize learning experiences, and promote digital literacy and technological skills. Success stories from institutions implementing blended learning initiatives are examined, alongside testimonials from students and faculty members on their experiences. The paper also discusses best practices and strategies for designing and delivering effective blended courses, emphasizing the importance of active learning, learning analytics, collaboration, and ongoing faculty support. Furthermore, the paper explores potential trends, innovations, and implications of blended learning technology, as well as considerations for policymakers, administrators, and educators. In conclusion, the paper underscores the transformative potential of blended learning for improving teaching and learning outcomes in higher education, calling for greater adoption and advancement of blended learning initiatives to meet the diverse needs of 21st-century learners.
Keywords: Blended learning, Higher education, Teaching and learning, Online learning, Hybrid courses, Student engagement, Digital literacy, Technological skills, Active learning, Learning analytics, Collaboration, Faculty support, Educational technology, Future trends.

1. INTRODUCTION

Blended learning in higher education represents a dynamic fusion of traditional classroom instruction with online learning modalities, aiming to optimize the learning experience for students in today's digital age. This section provides an overview of blended learning, its historical context, and the rationale behind its increasing prominence in educational settings.

1.1 Definition of Blended Learning in Higher Education:

Blended learning, also known as hybrid or mixed-mode learning, refers to an instructional approach that combines face-to-face classroom teaching with online learning activities and resources. It offers students the opportunity to engage in both synchronous and asynchronous learning experiences, leveraging the benefits of traditional instruction and digital technologies.

1.2 Brief Overview of the Traditional Classroom Model:

For decades, the traditional classroom model has served as the cornerstone of higher education, characterized by in-person lectures, discussions, and hands-on activities. While this model has been effective in facilitating face-to-face interactions and immediate feedback, it has also faced challenges in meeting the diverse needs and preferences of today's learners.

1.3 Introduction to the Shift towards Blended Learning:

In response to technological advancements and evolving educational needs, there has been a notable shift towards blended learning in higher education. This shift reflects a growing recognition of the potential of digital technologies to enhance teaching and learning outcomes, while also addressing the limitations of traditional instructional approaches.

2. EVOLUTION OF BLENDED LEARNING

Blended learning has undergone a significant evolution over the years, influenced by changes in technology, pedagogy, and learner preferences. This section explores the

historical background of blended learning and its journey towards mainstream adoption in higher education.

2.1 Historical Background of Blended Learning:
The roots of blended learning can be traced back to early experiments in distance education, where instructors supplemented face-to-face instruction with printed materials and correspondence courses. Over time, advancements in computing and telecommunications paved the way for more sophisticated blended learning models.

2.2 Emergence of Online Learning Platforms and Digital Resources:
The advent of the internet and the proliferation of online learning platforms have revolutionized the educational landscape, offering students access to a wealth of digital resources, interactive multimedia content, and collaborative tools. This technological revolution has empowered educators to explore innovative approaches to teaching and learning.

2.3Adoption of Blended Learning Models by Higher Education Institutions Worldwide:
In recent years, higher education institutions worldwide have increasingly embraced blended learning as a means of enhancing student engagement, improving learning outcomes, and expanding access to education. Blended learning models such as the flipped classroom, hybrid courses, and competency-based education have gained traction, reflecting a shift towards more flexible and personalized learning experiences.

3. CHARACTERISTICS OF BLENDED LEARNING
Blended learning is characterized by a diverse range of instructional models and methodologies that combine elements of face-to-face instruction with online learning activities. This section explores the key characteristics of blended learning and its potential to transform the teaching and learning process.

3.1 Explanation of Blended Learning Models:
Blended learning encompasses various instructional models, each with its unique blend of face-to-face and online components. Examples include the flipped classroom, where students engage in online learning activities prior to in-person class sessions, and hybrid courses, which combine scheduled classroom meetings with online instruction.

3.2 Flexibility in Scheduling and Delivery Methods:
One of the defining features of blended learning is its flexibility in scheduling and delivery methods. Students have the flexibility to access course materials and participate in learning activities at their own pace and convenience, whether in a physical classroom or through online platforms. This flexibility accommodates diverse learning styles, preferences, and scheduling constraints.

3.3 Integration of Face-to-Face Interactions with Online Resources and Activities:
Blended learning promotes the integration of face-to-face interactions with online resources and activities, fostering a dynamic and interactive learning environment. Instructors can leverage technology to deliver multimedia-rich content, facilitate collaborative discussions, and provide timely feedback, enhancing the overall learning experience for students.

4. ADVANTAGES OF BLENDED LEARNING
Blended learning offers a myriad of advantages that contribute to enriching the teaching and learning experience in higher education. This section highlights some of the key benefits of implementing blended learning approaches:

4.1Enhanced Student Engagement and Motivation:
Blended learning fosters increased student engagement and motivation by providing interactive and multimedia-rich learning experiences. The combination of face-to-face

interactions and online activities creates a dynamic learning environment that appeals to diverse learning styles and preferences.

4.2 Personalized Learning Experiences Tailored to Individual Needs:
Blended learning enables instructors to tailor learning experiences to meet the individual needs and preferences of students. Through the use of online assessments, adaptive learning platforms, and personalized feedback mechanisms, students can progress at their own pace and focus on areas where they need additional support.

4.3 Access to a Diverse Range of Learning Materials and Resources:
Blended learning expands access to a diverse range of learning materials and resources beyond the confines of the traditional classroom. Online platforms offer access to multimedia content, interactive simulations, virtual labs, and open educational resources, enriching the learning experience and promoting deeper understanding of course concepts.

4.4 Development of Digital Literacy and Technological Skills:
Blended learning equips students with essential digital literacy and technological skills that are increasingly relevant in today's digital society. By engaging with online platforms, collaborative tools, and multimedia resources, students develop proficiency in navigating digital environments and leveraging technology for learning and communication purposes.

5. CHALLENGES AND CONSIDERATIONS
While blended learning offers numerous benefits, its implementation presents a set of challenges and considerations that require careful planning and attention. This section explores some of the key challenges associated with blended learning and proposes strategies for addressing them:

5.1 Infrastructure and Technological Requirements:
Effective implementation of blended learning requires robust technological infrastructure and reliable internet connectivity. Institutions must ensure access to appropriate hardware, software, and online platforms to support seamless delivery of blended courses.

5.2 Faculty Training and Support for Effective Implementation:
Faculty members may require training and support to effectively integrate technology into their teaching practices and design engaging blended learning experiences. Professional development opportunities, workshops, and mentorship programs can help faculty develop the pedagogical and technological skills needed for successful implementation.

5.3 Maintaining a Balance Between Online and Face-to-Face Components:
Finding the right balance between online and face-to-face components is crucial for ensuring the effectiveness of blended learning. Institutions must carefully design course schedules and instructional activities to optimize student learning experiences and facilitate meaningful interactions in both online and offline settings.

5.4 Ensuring Accessibility and Inclusivity for All Students:
Accessibility and inclusivity considerations are paramount in blended learning environments to ensure equitable access to educational resources and opportunities for all students. Institutions must adhere to accessibility standards, provide accommodations for students with disabilities, and design course materials that are accessible to diverse learner populations.

6. SUCCESS STORIES AND CASE STUDIES
Blended learning has been implemented successfully in numerous higher education institutions worldwide, leading to improved learning outcomes and enhanced student satisfaction. This section highlights some notable success stories and case studies of institutions that have effectively integrated blended learning into their educational programs:

6.1 Examples of Institutions Implementing Successful Blended Learning Initiatives:**
6.1.1 Harvard University: Harvard's Extension School offers a variety of blended courses that combine online lectures, interactive assignments, and in-person seminars, providing flexibility for both campus-based and remote learners.
6.1.2 Arizona State University: ASU's online programs utilize a blended learning approach that integrates live streaming lectures, interactive online discussions, and hands-on lab sessions, allowing students to engage in experiential learning experiences regardless of their location.
6.1.3 University of Central Florida: UCF's Center for Distributed Learning has pioneered the development of blended learning initiatives, incorporating innovative instructional design strategies and technologies to enhance student engagement and retention.

6.2 Impact of Blended Learning on Student Outcomes and Satisfaction:
Research studies have consistently demonstrated the positive impact of blended learning on student outcomes, including higher course completion rates, improved academic performance, and increased student satisfaction.
Surveys and evaluations conducted by institutions implementing blended learning initiatives have reported positive feedback from students, who appreciate the flexibility, accessibility, and interactivity of blended courses.

7. BEST PRACTICES AND STRATEGIES:
To ensure the successful implementation of blended learning initiatives, it is essential to adopt best practices and strategies that promote effective teaching and learning. This section outlines some key strategies for designing and delivering engaging blended courses:

7.1 Incorporating Active Learning Strategies into Blended Courses:
7.1.1 Encourage active learning by incorporating interactive activities, group discussions, and problem-solving exercises into online and face-to-face sessions.
7.1.2 Utilize flipped classroom techniques to engage students in pre-class readings, videos, or quizzes, allowing for more meaningful in-class discussions and collaborative learning experiences.

7.2 Utilizing Learning Analytics to Monitor Student Progress and Engagement:
7.2.1 Leverage learning analytics tools to track student progress, monitor participation levels, and identify at-risk students who may require additional support.
7.2.2 Use data-driven insights to personalize learning experiences, provide timely feedback, and intervene proactively to address student needs.

7.3 Promoting Collaboration and Interaction Among Students:
7.3.1 Foster a sense of community and collaboration among students by incorporating online discussion forums, group projects, and peer-to-peer feedback mechanisms.
7.3.2 Design collaborative learning activities that encourage students to work together, share ideas, and learn from each other's perspectives.

7.4 Providing Ongoing Support and Professional Development Opportunities for Faculty:
7.4.1 Offer faculty training workshops, seminars, and online resources to enhance their pedagogical and technological skills for blended learning.
7.4.2 Provide opportunities for faculty to collaborate, share best practices, and receive mentorship from experienced educators in blended learning.

8. FUTURE DIRECTIONS AND IMPLICATIONS
As blended learning continues to evolve, it holds significant promise for shaping the future of higher education. This section explores potential trends, innovations, and implications of blended learning technology, as well as considerations for policymakers, administrators, and educators:

8.1 Potential Trends and Innovations in Blended Learning Technology:

8.1.1 Integration of emerging technologies such as artificial intelligence (AI), virtual reality (VR), and augmented reality (AR) into blended learning environments to enhance interactivity, simulation-based learning, and immersive experiences.

8.1.2 Adoption of adaptive learning platforms and personalized learning algorithms that tailor educational content and instructional strategies to individual student needs, preferences, and learning styles.

8.1.3 Expansion of mobile learning initiatives and microlearning approaches that enable anytime, anywhere access to educational resources and support seamless transitions between online and offline learning environments.

8.2 Impact of Blended Learning on the Future of Higher Education:

8.2.1 Blended learning is poised to play a central role in reshaping the future of higher education by promoting student-centered learning, fostering innovation in teaching pedagogies, and expanding access to quality education for diverse learner populations.

8.2.2 The integration of blended learning approaches into traditional higher education models has the potential to enhance institutional agility, resilience, and adaptability in response to evolving educational trends, global challenges, and technological disruptions.

8.3 Considerations for Policymakers, Administrators, and Educators:

8.3.1 Policymakers must prioritize investments in digital infrastructure, educational technologies, and professional development initiatives to support the widespread adoption and effective implementation of blended learning in higher education.

8.3.2 Administrators should develop strategic plans and institutional policies that promote a culture of innovation, collaboration, and continuous improvement in blended learning practices.

8.3.3 Educators need to embrace lifelong learning, engage in ongoing professional development, and leverage evidence-based practices to design, deliver, and assess blended learning experiences that meet the diverse needs of 21st-century learners.

9. CONCLUSION

In conclusion, blended learning represents a transformative approach to teaching and learning in higher education, offering a flexible, personalized, and interactive learning experience that transcends the boundaries of traditional classroom instruction. Despite the challenges and complexities inherent in its implementation, blended learning holds immense potential for improving teaching and learning outcomes, enhancing student engagement and satisfaction, and preparing learners for success in the digital age.

"As we traverse the ever-changing terrain of higher education, it is essential to recognize the transformative potential of blended learning and embrace it as a catalyst for innovation, equity, and excellence in teaching and learning. By fostering collaboration, sharing best practices, and embracing emerging technologies, we can harness the power of blended learning to create more inclusive, dynamic, and effective learning environments that empower students to thrive and succeed in an increasingly interconnected world."

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BLENDED LEARNING- STRENGTHS AND SHORTCOMINGS

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Abstract - *Technology has increased its horizons towards teaching and learning. Now teaching and learning has become easier with increased access and flexibility. With the advent of technology in education, it has become economic and available to everyone at all-time. In this way education has now blended with technology using various types of ICT tools in teaching.* Blended Learning is a mode that provides innovative educational solutions through blending of traditional classroom teaching and online digital teaching. The principle of blended learning is that learning is continues process. It is the technology enabled learning which extends beyond the classroom and facilitates more access to learning resources. Blended learning involves an integration of traditional face-to-face learning with digitalization using technology, the internet, web-cams, online meets and smartboards. Blended learning is beneficial for both learners and teachers. But everything has two aspects. The present paper focuses on strengths and shortcomings of blended learning.
Keywords: Blended Learning, Digital education, ICT Tools, Teaching Methodology.

INTRODUCTION

Education is an important process in overall development of a person. Education involves of all the processes involved in shaping the of an individual. The overall growth of an individual directly relates with the development of country. Therefore, every nation must focus on the good educational conditions in their country. In this frame, the educational sector must be developed with advanced teaching and learning methodologies. In the development of new teaching and learning techniques, educators are working for new and innovative techniques to provide easy and accurate materials for their students. In this view, Blended Learning is one of the recent concepts being taken at educational institutes.

With the growing needs of learner, the educational sector today is changing a lot. The learner now wants to persue many courses at time. The enrollments in the courses are also increasing. To meet such type of challenges, educators are now moving towards the new horizons of teaching. One such is “Blended learning”.

The term, Blended Learning is described as the new way of teaching and learning which combines e-learning with traditional classroom methods. Thus this may be regarded as “hybrid teaching method”. Blended Learning provides innovative educational solutions with an effective blending of traditional classroom teaching with e-learning. The methods provide scopes for online activities for teachers and students. It may be regarded as the is the technology driven learning which extends beyond the classroom boundaries. It provides a more broader scope of learning facilitates and better access to learning resources.

Teaching through blended mode provides many benefits over using any single learning delivery medium only (Singh, 2003). According to Friesen and Norm (2012), Blended learning is a formal education method in which a student learns some part through delivery of content and instruction via digital and online media and some element through classroom teaching.

UNDERSTANDING “BLENDED LEARNING”

Before going into deep into the use of blended methods in teaching and learning, we should first understand the concept of blended learning.

There are many definitions of blended learning given in different sources. According to Graham.Ch et al (2019) “Blended learning is strategic combination of online and in-person instruction.” Russel T. Osguthorpe and Charles R. Graham in 2003 mentioned that Blended learning links face-to-face to distance conveyance framework but is more than demonstrating a page from a website on the screen. The learners who use blended learning methods actually takes the advantages of both face-to-face and online techniques. According to Garrison and Kanuka (2004) “Blended learning is the innovative

integration of classroom face-to-face learning experiences with online learning experiences". Dr. Ranjana Bhatia says that "Blended learning combines online instruction components with those found in traditional face-to-face instructional environments" . John Watson mentioned that "Blended learning, which combines the best elements of online and face-to-face education, is likely to emerge as the predominant teaching model of the future". With this, it can be concluded that Blended learning is an integration of traditional face-to-face learning methods with digital technology and distance learning.

STRENGTHS OF BLENDED LEARNING

As discussed above blended learning methods are beneficial to the learners as well as to the educators. Some strengths of blended mode of teaching may be listed out as follows:

- Blended methods of teaching and learning are more effective than purely face-to-face or purely online classes. This leads to improved success rate of learners.
- Blended methods of teaching and learning provide individual accesses to the learners. They can work on their own with building new concepts different from their teachers.
- In blended mode, teachers can provide their notes and instructions all students using digital platforms.
- Collaborative learning experience for all type of learners.
- Blended mode uses different types of ICT Tools to develop learners's ability to understand the topic.
- Assessment methods are also easy and a variety of different assessments techniques can be used by educators. Learners enjoy the assessment process and may also get the valuation in shorter time. In this way, they can improve in final assessment process and can complete the course or degree with high grades.
- The blended mode provides and economic way of education since it reduces educational expenses and training costs. It places the classrooms on to the digital platforms thereby replacing expensive textbooks with electronic devices.
- The teacher who uses the blended mode of teaching and learning may effectively can keep the data of learners.
- With blended mode, the educational institutes can manage their time and faculties and in this way can work effectively with limited staff and resources.
- With the help of blended mode, skill developmental lectures can also be framed by providing useful photos and videos.
- Blended learning breaks the boundaries of time and classroom as the students can manage its own time to study and do assessments.
- It provides learner many chance to go through the class again and again until his concepts are clear. This helps in the matching of slow learners and fast learners and will overall upgrade the class result.
- In blended mode of teaching, faculty is nit required to present at all times. They can teach being online or they can provide their pre- recorded lectures to the learners.

SHORTCOMINGS OF BLENDED LEARNING

As listed above, blended learning has many strengths to be counted off but there are some shortcomings also as listed below:

- Blended learning is completely dependent on technical aspects thus a proper planning and execution is required.
- In order to use blended mode, the faculties themselves should be properly trained with respect to ICT Techniques.
- Online meets and classes should be carefully handled.
- In blended teaching, since faculty provides the pre recorded lectures to the learners, they may develop a habit of not making their own notes.
- Sometimes managing electronic devices and data are difficult for students.
- A constant internet access is required by the students and teachers.
- Learners can search many non- required resources if proper links are not provided to them.

- Learners must have familiarity to digital technologies.
- •The use of smart boards and screens may make the blended mode more expensive.
- Sometimes teachers and students don't use blended mode of learning due to lack of motivation to do so.

CONCLUSION

Blended Learning is one of the young and innovative concepts in the teaching and learning process. Due to advance requirements of learners, the educational system is managing to adopt new technologies and building new pathways to provide the quality education. Blended Learning is type of digital learning in which learners gets the benefit of both classroom teaching and digital teaching. It is a more effective way e-learning, combining with traditional classroom methods with e-learning. It is now leading to hybrid teaching methodology. Blended Learning is useful approach that provides innovative educational methods through an effective blending of traditional classroom teaching with ICT Based learning and online activities for teachers and learners.

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A COMPREHENSIVE REVIEW ON THE IMPACT OF ARTIFICIAL INTELLIGENCE ON SCIENCE EDUCATION

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Abstract - Teaching is a means of sharing and transmitting knowledge to students to help them develop the skills and use the knowledge that fosters critical thinking and creativity. It is impossible to overstate the importance of teachers in fostering the best possible learning environment as they are tasked with developing the curriculum, offering assistance, and delivering feedback to students. The conventional teaching approach emphasizes the teacher's transfer of information to students through books. The new era has brought about advancements in science and technology as well as an increase in people's critical thinking. Modern teaching techniques are also commonly employed to raise teaching standards and provide students with a better education. The development of students' values and skills is given more consideration in modern teaching methodologies. Over the past few decades, interest in artificial intelligence (AI) and its possible uses in education has increased. Teachers' attitudes and behavioral intentions are crucial in this regard. Research has demonstrated the efficacy of the technology acceptance model in forecasting variables that could either favorably or unfavorably affect behavior intentions related to technology use. The goal of the current review is to find out how educators perceive the variables influencing the usage of artificial intelligence applications in the teaching of science.
Keywords: Modern technology; Teaching methods; Artificial Intelligence; Science education

INTRODUCTION

The ways that teaching and learning occur in classrooms have been completely transformed by modern technology. Using a variety of tools and gadgets has improved the efficiency and effectiveness of the process overall, making it one of the most important components of this change. These tools include, among other things, tablets, computers, smart boards, and educational software. For example, interactive material displays on smart boards facilitate students' understanding of difficult ideas. Students have access to a plethora of knowledge and tools that support their learning through tablets and laptops. Additionally, students have access to more interactive and interesting learning environments thanks to instructional technologies like online learning platforms and virtual simulations. Additionally, they have enabled educators to use cutting-edge teaching strategies that meet the unique needs of each student, which has boosted academic performance (Shahid et al., 2019).

The development of novel innovations and the ability to process increasingly sophisticated devices are inextricably linked to higher education's future. AI-based applications are already a necessary component of our everyday routines, indicating the increasing importance of technology (Rodríguez-Hernández et al., 2021). In recent years, artificial intelligence has found its way into an expanding variety of educational applications. The new potential and challenges that artificial intelligence developments for teaching and learning provide could significantly alter the internal architecture and governance of higher education organizations (Kuleto et al., 2021).

By 2024, AI will power 47% of school management tools, according to a survey published in the journal Business Today (Wogu et al., 2018). Furthermore, it is projected that the use of AI in education will rise at a compound annual growth rate (CAGR) of 40.3% from 2019 to 2025 (Bagdi et al., 2023; Chang et al., 2022; Vishwakarma & Sharma, 2025). We have to remember the days when learning new information could only be obtained in the library. However, during the past 20 years, there has been a significant transformation in the context of education, and we now have instant access to a wide range of teaching and learning resources. Education has transformed thanks to the use of technology, which has increased accessibility and efficiency. The definition of educational technology given by the

Association for Educational Communications and Technology (AECT) is "The concepts and methods of the creation, production, usage, maintenance along with an assessment of procedures and assets for learning"(Januszewski & Molenda, 2013).

It's anticipated that artificial intelligence (AI) will help improve virtual learning environments. The Indian educational marketplace, which is expanding quickly and is expected to cross US$ 2 billion in 2022–2023, may benefit from this (Al Husseiny & Munna, 2024). Although we all understand that a teacher's function is vital in the discipline of education, artificial intelligence (AI) will help teachers become more skilled, fill in any gaps in their knowledge, and simplify their work. Teachers will be able to manage their time more effectively if administrative tasks are automated. AI enables kids to receive individualized instruction, assessments, and learning strategies. Otherwise, this presented a difficulty for the teachers, since it was almost hard to oversee and deliver instruction that was customized to meet the individual needs of every pupil. A vast population can benefit from automation by having access to smart material, which can be used to provide high-quality education, it is possible to produce digital study materials and textbooks in the form of digital lessons; visualizing data driven by AI can assist in producing interesting content; organize and modify information based on the learning curve of the student; and converting real classrooms into virtual ones using websites, mobile apps, and online resources (Haleem et al., 2022; Saini & Goel, 2019).

IMPACT OF ARTIFICIAL INTELLIGENCE IN EDUCATION SYSTEM

Technological developments related to computers and allied fields have impacted artificial intelligence, which has become ubiquitous in society and has the potential to significantly impact numerous businesses. AI has significantly impacted the subject of education, for instance. It was decided that to comprehend how artificial intelligence (AI) has impacted education, it was important to define and describe AI. It was discovered that various definitions of AI produced varying theories, traits, and essences of AI. Computers and computer-related techniques have only lately been used in education to support student learning and manage a variety of administrative and educational responsibilities (Tınmaz, 2004).

The usage of humanoid-looking robots, which can carry out a range of educational functions either alone or in collaboration with humans, is an early indication of AI's future development and deployment on web-based and online platforms. Furthermore, it is evident that the use of artificial intelligence (AI) in education, in any form, has improved student engagement and satisfaction with learning (Annuš, 2024; Darvishi et al., 2024; Shahzad et al., 2024). Because of this, artificial intelligence (AI) has had a notable impact on education generally and on the
employment of technology at particular educational institutions specifically. Teachers can finish administrative work more quickly and efficiently by using artificial intelligence (AI), such as grading homework and giving students feedback (Rahiman & Kodikal, 2024). Using several types of artificial intelligence, such as chatbots (Chat) and cooperative robotic agents (CORA), can enhance the quality of training (Cheung et al., 2024). The ability of AI to evaluate students' skills and requirements, create and disseminate customized or tailored information that guarantees higher uptake and retention, and enhance learning, makes it feasible for students to have a better and fuller learning experience (Ng et al., 2024).

Nonetheless, AI-enhanced learning will become more significant in the classroom as student requirements evolve. It hasn't yet attained the pinnacle of intelligence in intelligence education and only provides courses that vary in difficulty. In AI education, a knowledge map and a probability model have been examined. As AI systems engage with learning processes more frequently, they will collect an increasing amount of data, which will enable more precise information recommendations. AI systems will supply teachers and students with high-quality content that can be measured through data mining, machine learning, and learner analytics. Users will now have more options to select from to get an accurate response to their questions. The perfect AI system will analyse students' learning preferences, emotional states, and self-direction to promote independent thought and assist them expand their creative and inventive abilities. Increased usage of artificial intelligence systems is predicted to have benefits beyond helping students learn specific facts, including

natural abilities, deep understanding of the material, academic achievement, and career growth (Gedrimiene et al., 2024).

ARTIFICIAL INTELLIGENCE IN SCIENCE EDUCATION

The way that humans use their brain systems to understand, learn, reason, and conduct correctly serves as the model for artificial intelligence, a sort of computer system (Stone et al., 2016). The concept that intelligence could be precisely defined, to the extent that a machine could mimic it, served as its cornerstone. Artificial intelligence (AI) can be more sophisticated than other computer programs when it comes to learning, scenario recognition, issue solving, and natural language communication. AI can also be trained to learn on its own (Kok et al., 2009; Tang, 2024). According to Nikitas et al. (2020), artificial intelligence is still in its infancy as a concept, but it has the potential to develop and improve the effectiveness of the use of resources of all kinds in
all disciplines. The use of AI in education is one of its most significant uses. It is becoming recognized as a cornerstone of STEM education and helps teachers fulfil their responsibilities as learning facilitators and assessors. The ability to analyse large amounts of learning process data gathered from students, teachers, and educational institutions serves as evidence of this. An artificial intelligence (AI) computer that can recognize and understand speech and then respond properly is called a chatbot. It provides customized learning support via a range of devices, such as laptops, mobile phones, and speakers.

Furthermore, two well-known instances of chatbots with AI capabilities are Google Home and Amazon Alexa. Chatbot-teacher interactions have the potential to facilitate learning by offering a new teaching paradigm across a range of scientific subjects (Deveci Topal et al., 2021). According to Zhao et al. (2019) using AI-based training helps students conquer word forgetting and enhances their academic performance. Furthermore, by enhancing student performance and learning, chatbots, according to Deveci Topal et al. (2021), can aid in the teaching of science. Additionally, teachers may be able to enhance students' writing skills in science by implementing an AI-enhanced modelling system (Kim & Kim, 2022). Artificial intelligence (AI) programs may collect, store, and interpret data. They can also encourage self-learning, which enables scientific teachers to better accommodate the unique learning styles of their pupils. Applications of artificial intelligence (AI) can receive, store, and process information. They also seem to be a major contributor in helping learners establish and integrate their scholarly concepts, interactively present scientific material, and help achieve therapeutic goals that align with their needs. With AI, there is a plethora of pre-made software available for teacher-assisted or self-directed learning. This software can be utilized in conversations and exchanges, which contribute to the overall advancement of the educational process (Al Darayseh, 2023). As a result, AI applications influence curriculum, instruction, scheduling, and communication, all of which have an impact on education.

CONCLUSION

According to the study's findings, scientific instructors are generally in favor of implementing AI applications in the classroom. Furthermore, teachers' behavioral intention toward AI applications is most influenced by the following factors: self-efficacy, projected benefits, convenience of use, and attitudes about AI applications. A plausible rationale could be that educators currently possess a foundational understanding of information skills; so, when contemplating the integration of technologies in the classroom, they first evaluate the technologies' efficacy and then determine whether to embrace or persist with their use (Wang & Wang, 2009). The convenience with which scientific instructors integrate AI tools, however, also influences how they feel about utilizing AI to enhance instruction. Additionally, making it easier for instructors to incorporate AI applications into their science lessons might increase their perception of the value of AI-assisted instruction and encourage their adoption of the technology. Thanks to artificial intelligence (AI), teachers can now design classes that are specifically catered to the requirements and skills of individual students, which has improved student learning results. AI has a broad impact on education, affecting learning, teaching, and administration in educational institutions as well as the education industry at large.

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IMPACT OF USE OF MODERN TECHNOLOGY IN EDUCATION

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Abstract - In this global world, all of us interconnected with technology in our day-to-day lives. It is an eminent tool which improves the education system by several ways from educators to students. Technology has allowed contemporaneous learning, transcending geographic limitations and enabling students to access resources at their convenience. There are several technological gears which provide free online resources, personalized learning materials, more engaging content, and a better understanding of visuals and opportunities for advanced learning. Technology leaves an immense impact on education and new ICT enabled tools of education makes education more flexible and insightful. These tools also empower educators to monitor student engagement, nurturing collaborating creative learning practices, and promote human-centered education that lay emphasis on critical thinking, creativity, and entrepreneurship skills. In this fast - emerging world, where change is ushered in at an unprecedented pace, it is important to accomplish progression and to support the transformation enabled by educational technology.
Key Words: Education , Technology

INTRODUCTION

At present we are living in digital world where technology plays pivotal roles and it makes lives easier and more comfortable. In this techno savvy world everything is available on the finger tips and distances are no more barriers for us. In this global world, all of us interconnected with technology in our day-to-day lives. We can clearly see the impact of technology in every possible field and education is one of them. With the help of technology education is also now available to the student's doorsteps. According to **oprah winfrey** "education is the only key to unlocking the world. It is our passport to future, for tomorrow belongs only to the people who prepare for it". Education is a form of learning in which the knowledge, skills and habits are transformed from one generation to next through teaching, training and research. **At present everything in this world are interwoven with** technology and has become a part of our normal life **(Aghaei et al., 2020)**; therefore, education should merge with technology for achieving better results. Educational technology is systematic ways in which we are applying modern technology with the traditional knowledge for improving the quality of education. **(Kanika Budhwar, 2017)**.

OBJECTIVE AND METHODOLOGY OF THE STUDY

The objective of the study is to examine the impact of modern technology in education. This study is the based on secondary sources of data which acquired from different journals, books, websites etc.

LITERATURE REVIEW

According to **Nelson Mandela** "Education is considered to be a powerful weapon which can change the world". **Mahatma Gandhi** also narrate that "if we want to reach real peace in this world we should start educating children and by education, I mean an all-round drawing out of the best in the child and man; body, mind, and spirit." Education is not just read or write anything but it is a fundamental component of human growth. Being the essential factor of life United Nations' sustainable development goals agenda 2030 is also incorporate the education in SDGs. The aim of incorporation is to ensure inclusive and equitable quality education for all and it is possible only by the use of ICT in education sector. Incorporating technology in education trained students for essential digital literacy skills which is necessary for success in the modern world. They learn to use digital tools and platforms, preparing them for the digital workforce. Collaboration and communication skills are enriched through technology-enabled learning environments, where students engage in virtual collaboration, online discussions, and project-based activities. With the help of technology any one can access the knowledge anywhere from the world. Online

courses provide the opportunities for those students who may not have access to traditional educational resources, such as those in remote or underprivileged areas. In this technological advancement online study materials are also available for students which help them to study at their own pace and on their own schedule. It makes education more accessible to those who have other commitments, such as work or family **(Shashank Joshi, 2023)**.

A study done by **Abid Haleem, Mohd Javaid , Mohd Asim Qadri and Rajiv Suman (2022)** on traditional and modern classroom teaching shows that traditional classroom instructions fall short of providing an instant learning environment, faster assessments, and more engagement. In contrast, digital learning tools and technology fill this vacuum. As comparison to traditional methods of teaching Morden technological tools provides some efficiencies which are unrivalled. Some studies done by **Penprase (2018), Kryukov, & Gorin (2017), and O. Lopez-Fernandez (2021),** on the use of technology among the youngsters and conclude that now a day's young generation are pretty acquainted to the usage of electronic gadgets, incorporating them into education would undoubtedly assist in annoying their interest and enhancing their involvement levels.

Technological integration with education provides students to hands on learning experience, which make the subjects more interesting without any distracted. The use of modern tools in study and other technical gear in the classroom may make studying captivating and amusing for students. These modern tools and techniques make learning more dynamic and engaging for the participants and it can be extend out there verbal communication as well. Scholars found out that merging technology in teaching can be a method for adding to the effectiveness of educators' teaching and learners' learning **(Cuban, 2009)**. The impact of retaining technology on teaching is examined by various scholars in numerous fields and they are agreed that technology enables educators to enhance their education methods and students to lift up their understanding **(Timucin, 2006; Gilakjani and Sabouri, 2014).** A study done by Jabbari and others reflect the fact that educators who combine academic technology with in-class instruction have a deep effect on their education efficiency and learner success. **(Jabbari et al., 2017).**

IMPACT OF TECHNOLOGY IN EDUCATION

Positive Impact on Education:

The use of technology improved knowledge and interest of students in study. The ICTs which is using in education are student centric and also provides valuable feedbacks through various interactive features. ICT allow students to discover and learn through new ways of teaching and learning which are sustained by constructivist theories of learning rather than students do memorization and routine learning **[Tinio (2002)]**. Various types of technologies can be used to try different things with and choose what works best for learners to improve their interest of study. Everybody has different capacities and styles of learning and technology gives them chance to accustom their study according to their requirements. Access to the Internet gives learners a wide scope of resources to explore different avenues, which thereby can build their commitment.

Technology can boost collaboration among the students around the world. A study done by **gregoire and others** found that the use of ICT leads to more cooperation among learners within and beyond school and there exists a more synergic connection between students and teachers **(Grégoire et al., 1996)**. **Tinio (2002)** emphasized that ICTs has a magnificent effect on education in terms of achievement and captivation of knowledge to both teachers and students through the upgraded dynamic, collective and supportive learning. Students can learn valuable fundamental abilities through technologies. They are able to tackle complex issues, cultivate basic reasoning fundamentals and practical skills with the help of it on the one hand and on the other hand technology improves their initiative ability and productivity also. These skills are very important which can be developed in the classroom **[Amit Kumar Das, (2018)]**.

With the help of ICT one can create their own knowledge and promote their product and information which is useful to them. Numerous resources, like digital cameras, projectors, mind training software, computers, Power point presentations, 3D visualization tools; can be great sources for teachers to help students grasp a concept easily. Several

research explains that audio - visual explanation of concepts makes learning more effective for students and they are able to participate more in the classroom and even teachers get a chance to make their classes more interactive and interesting [**Raja and Nagasubramani (2018)]**. Virtual lesson plans and online assessments can help teachers save a lot time. This virtual learning environment in schools enhances collaboration and knowledge sharing between teachers [**Arun Padmanabhan**, (2020)].

NEGATIVE IMPACT OF TECHNOLOGY

We are living in the age of science and technology. We cannot imagine our lives without it. According to the requirement of human being science and technology also develop with their pace in different times and makes the life more efficient and comfortable in comparison to past decades but every coin has two faces. Technology makes life comfortable on the one hand and excess rely on it creates numerous problems on the other hand.

A study did in USA aim to check students' performance. The data revealed alarming facts about students' writing skills. 68% of surveyed teachers concede that digital tools make students take shortcuts, instead of investing any effort in writing, 67 % students have difficulty in reading and comprehending complicated texts, and 46 % says digital tools make students write fast and carelessly apart from this students incline to show their interest to use more and more abbreviations in their writings, as like communicating electronically.

A similar study was conducted by Dansieh in 2011; found that text messaging drastically affects students' writing, including spelling, sentence construction and syntactic structures. It further revealed that short forms and abbreviations used in electronic messaging are now commonly used in students' classroom writing to the extent that much of what they write is blurred and problematic. **Strain-Moritz (2016)**, also support this augment. **Alhusban (2016)** also reach on the same conclusion with some other facts i.e., students become less competent about spelling and punctuation, grammatical accuracy, proofreading, critical thinking, respect of coherence and linearity.

Some recent studies have shown that technology has a negative impact on the process of education (Fried, 2008; Wentworth & Middleton, 2014), particularly on the four areas which reveals that deterioration of students' competencies in reading, writing, and arithmetic, dehumanization of education in many environments and distortion of the relationship between teachers and students, isolation of students in a digital and virtual world that distances them from any form of social interaction; and deepening of social inequalities between the haves and the have-nots that is students who can possess technology and those who cannot.

Bronowicki, (2014) explains one more dark side of use of technology is the laziness of students because of their heavy, daily reliance on technology. Similarly, **Granata (2019)** experienced that students now have least interested in paperbacks and replaced them with smartphones, iPads and other technological gadgets. **Cazan et al (2016); Izadpanah & Alavi (2016) and Nye (2006)** amongst others, have highlighted the dehumanizing effect of technology on student-teacher relationships. Nye (2006) claims that use of technology pulls people away from the physical connections. At present teenagers are habituated to a world of online blogging, instant messaging, and Web browsing that leaves electronic traces and excess dependence on it isolated them from the physical environment. The isolation feeling convert in loneliness after a short time and it is significantly related to the dehumanising impact of technology. These issues show the neglect of relationships in the education. Another drawback of the reliance on technology is deprivation of social interaction in the peer groups and this phenomenon is more and more prevalent among young students across the world. Apart from above factors so many other things are there which adversely affect the behaviour and efficiency of the students.

CONCLUSION

Education has the power to change entire life. Learning changes thinking abilities and perception. It gives the right direction to our life. Education helps us to live our life in a better manner by seeing things in a broader prospect. Education gives us chance to make

world is a better place to live. Education spread immense knowledge about our surroundings which is necessary for growth and development of us. Technology plays pivotal role in the development and at present everything is affected and influenced by technology. Likewise the other areas; education is also changing with technology. Technology supports the education by new tools and techniques which make education easier and accessible to all from entire world. It is beneficial to the students as well as teachers on one hand and at the same time it may have some negative impact also like adverse effect on writing skills, weak bond between students and teachers, less critical thinking etc. Technology is a boon or a curse depends on the person who is using it. Education is a noble profession as well as grate potential to make good citizen results to build a loving and proud nation in the world. To make education more fruitful teachers and students take advantage from this to put in the best light and exclude the shortcomings for achieving excellence. It is the demand of future that every country should introduce more advanced and techno - equipped courses which provides new ideas and opportunities to build better lives for themselves and their communities.

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LEARNING MANAGEMENT SYSTEMS (LMS) AND ONLINE PLATFORMS IN NATIONAL EDUCATION POLICY

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Abstract - India is a global leader in ICT and in other cutting-edge domains, such as space research. To improve the country's educational system and provide a blueprint for the future, the government of India has come up with National Education Policy 2020. Relationship between technology and education at all levels is multi directional. 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. Extensive use of technology in teaching and learning, removing language barriers, increasing access for Divyang students, and educational planning and management. Digital India Campaign is helping to transform the entire nation into a digitally empowered society and knowledge economy. Educational technology plays an important role in the improvement of educational processes and outcomes. Thrust of technological interventions Teaching- learning and evaluation processes Supporting teacher preparation & professional development. Enhancing educational access Removing language barriers Streamlining educational management and administration Access to Divyang student.
Keywords: Education, ICT, LMS, skill development, teaching and learning.

INTRODUCTION

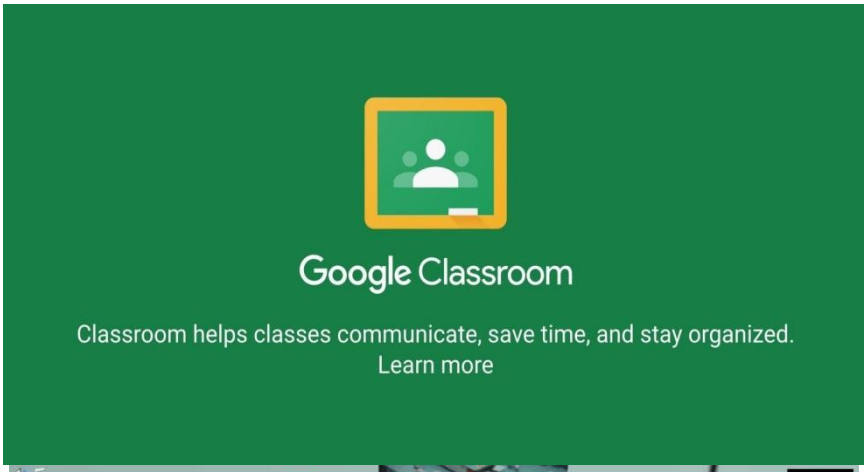
NEP 2020 is considered to be a revolutionary step towards the upliftment of education. One of the major concerns of the policy is the implementation of technology in teaching and learning. The word "Technology" is derived from the two Greek words namely Technic and Logia, where "Technic" means the art 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]. With an aim to remove the language barriers, the policy also has a special emphasis on multilingualism. Technology not only makes the access possible but it also contributes in education planning and management. The National Education Policy with a learner centric approach aims to transform education with a clear objective to cater to the needs of this globalized society.

In recent years, world is observing fast developments in the field of modern technologies in form of advanced computers, internet, augmented reality, virtual etc. which are impacts daily life and careers. The use of the modern technologies especially the digital applications can help students in developing digital competence and skills for the future.

1. DEVICES USED IN MODERN TEACHING

There are so many devices that is used in modern classroom teaching that are :-

- Smartboards
- 3D Printing
- Tablets
- Game Learning
- Augmented reality
- Virtual laboratories
- E-books
- Remote/Online learning
- Online tools


Google Classroom
Classroom helps classes communicate, save time, and stay organized.
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BACK
0 rpm
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DAY 2
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PROGRESS: 62%
Click to answer the quiz question.


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Teacher Education
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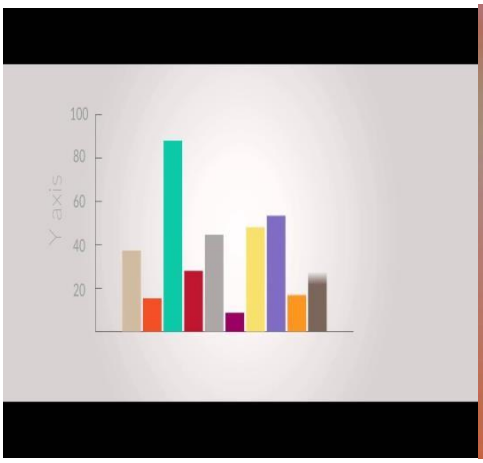
Transforming the Regulatory System
Promotion of Indian Languages, Arts, & Culture
Technology Use & Integration



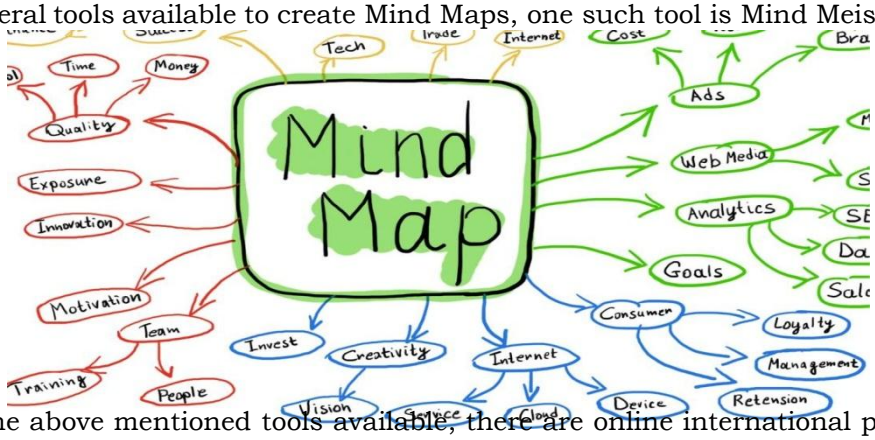
2. GOOGLE CLASSROOM helps educators specially during Covid times and create engaging learning experiences they can personalize, manage, and measure. Classroom is part of Google Workspace for Education, which empowers your institution with simple, safer, collaborative tools. It is a structured tool that 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 throughmobile 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.

Open source tools available for free for teaching video preparations are Open Broadcaster Software (OBS) and screencastify. Free and open source software for video recording and live streaming. Download and start streaming quickly and easily on Windows, Mac or Linux. Screencastify is Chrome's simplest free screen recorder and video-creation platform, allowing recording, editing, sharing, and assessing videos in seconds. Screen castify offers a free forever version, which has a limit of up to 5 minutes for video recording.

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 data.

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.

3. MIND MAP 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 Mind Maps, one such tool is Mind Meister.



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
- Anki for Language learning

4. FUTURE LEARN- 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, 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 Program 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.

5. CONCLUSION

Modern technologies with education can help students related several learning concepts to the applications and lead to skill development and research orientation for society for many

useful innovations. Knowledge of modern technologies can be easily integrated into the teachingand 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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A REVIEW ON INFORMATION COMMUNICATION TECHNOLOGY TOOLS IN TEACHING AND LEARNING IN RELATION TO OVERALL DEVELOPMENT OF AN INSTITUTION

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Abstract - In today's digital age, information and communication technology (ICT) has revolutionized the way teaching and learning take place. With the availability of various ICT tools such as laptops, tablets, interactive whiteboards, and educational software, teachers can create engaging and interactive lessons that cater to different learning styles. These tools also allow students to access a vast amount of information and resources, increasing their understanding and knowledge on various subjects. Moreover, ICT tools facilitate communication and collaboration between teachers and students, as well as among students themselves, through online platforms and forums. This leads to a more dynamic and inclusive learning environment, where students can actively participate and share their ideas. Furthermore, ICT tools provide opportunities for personalized learning, as students can work at their own pace and receive immediate feedback through online assessments. Overall, the integration of ICT tools in teaching and learning has transformed traditional classrooms into modern learning spaces that promote creativity, critical thinking, and global awareness among students.
Keywords: Facilitate communication, collaboration, feedback, assessments etc.

INTRODUCTION:

Information and Communication Technology (ICT) has revolutionized the way teaching and learning is delivered in schools and educational institutions. With the rapid advancement of technology, various ICT tools such as computers, tablets, smartphones, and interactive whiteboards have become essential tools in classrooms. These tools have made the learning experience more innovative, engaging, and interactive for students. Teachers can use multimedia presentations, educational software, and online resources to deliver their lessons more effectively. Students can also use these tools to enhance their learning experience by accessing a wide range of educational materials online.

ICT tools have also made it possible for teachers and students to collaborate and communicate with each other beyond the physical classroom, allowing for greater flexibility and efficiency in learning. Furthermore, ICT tools have made assessment and evaluation easier for teachers by providing them with various online platforms to track student progress and provide timely feedback. Overall, the integration of ICT tools in teaching and learning has transformed traditional teaching methods into a more dynamic and student-centered approach, preparing students to adapt to the digital world they will encounter in their future careers.

REVIEW OF LITERATURE:

The history of ICT tools in teaching and learning can be traced back to the early 20th century when radio and film were first used as instructional media. However, it was not until the 1960s that computers were introduced into the education sector.

The first use of computers in teaching and learning was for computer programming courses, but their potential for enhancing other subject areas was soon realized. With the development of the internet in the 1990s, a new era of ICT tools emerged, allowing for information to be accessed and shared globally. This led to the introduction of multimedia tools, such as CD-ROMs and interactive whiteboards, which revolutionized traditional teaching methods.

As technology continued to advance, new and innovative tools were introduced, including online learning platforms, virtual and augmented reality, and mobile devices. These tools have greatly enhanced teaching and learning by providing access to a vast amount of information, promoting collaboration and communication among students and teachers, and allowing for personalized learning experiences.

The history of ICT tools in teaching and learning has shown that technology has become an integral part of education, constantly evolving and improving the way we teach and learn.

The use of ICT tools in teaching and learning has a rich history that dates back to the early 20th century. The first ICT tool used in education was the radio, which was utilized to deliver educational programs and lectures to a wide audience. As technology advanced, the use of projectors, film strips, and overhead projectors became common in classrooms.

However, the real breakthrough came with the introduction of computers in the 1970s, which revolutionized the education system. The internet emerged in the 1990s and brought with it a plethora of new possibilities for teaching and learning. With the development of software applications and online platforms, students were able to access vast amounts of information and participate in collaborative learning activities from anywhere in the world.

In recent years, the use of ICT tools such as interactive whiteboards, tablets, and virtual reality has further enhanced teaching and learning experiences, making them more engaging, interactive, and personalized. Today, ICT tools continue to evolve and play a crucial role in modern education as more schools and institutions adopt them to prepare students for the ever-changing digital world.

CURRENT SCENARIO OF ICT TOOLS IN TEACHING AND LEARNING:

In today's world, the use of ICT tools in teaching and learning has become ubiquitous due to the rapid advancement of technology. With the emergence of various digital devices and online platforms, teachers and students now have access to a vast array of tools that have revolutionized the traditional methods of teaching and learning. These tools range from interactive whiteboards, educational apps, online learning management systems, virtual classrooms, and video conferencing tools, among others. These ICT tools have made learning more engaging, interactive, and personalized for students, while also providing teachers with innovative ways to deliver their lessons and assess students' progress.

Furthermore, the ongoing COVID-19 pandemic has further highlighted the importance and necessity of ICT tools in ensuring continuous education for students in a remote learning setup. As technology continues to evolve, the possibilities for incorporating ICT tools in teaching and learning are endless, making it an integral and indispensable part of modern education systems.

In today's fast-paced digital world, Information and Communication Technology (ICT) has become an integral part of teaching and learning. The current scenario of ICT tools in education has revolutionized the traditional methods of imparting knowledge. With the rise of technology, classrooms have transformed into interactive learning spaces where students can access a vast amount of information with just a click. Smart boards, educational apps, online learning platforms, and virtual classrooms have made education more engaging and accessible to students.

Teachers are also utilizing various ICT tools to create innovative teaching strategies and enhance their students' learning experience. Moreover, ICT has opened up new avenues for distance learning, making education accessible to individuals from all walks of life. With the continuous development of new tools and technologies, the future of ICT in education seems bright, and it is expected to further enhance the teaching and learning process. However, it is crucial to ensure that the use of ICT tools is balanced and complementing traditional methods to provide a well-rounded education.

COMPONENTS OF ICT TOOLS IN TEACHING AND LEARNING

ICT tools have become an essential part of the teaching and learning process in modern education. These tools are used to enhance the learning experience and make it more interactive, engaging, and effective. The components of ICT tools in teaching and learning include hardware, software, and connectivity. Hardware refers to physical devices such as computers, laptops, tablets, projectors, and interactive whiteboards that are used to display information and facilitate communication. Software includes applications and programs that enable educators to create, organize, and share content with students. It also includes

educational software that provides interactive learning experiences and helps students practice and assess their understanding.

Lastly, connectivity plays a vital role in ICT tools as it enables students and teachers to access online resources, communicate with each other, and collaborate on projects. These components work together to create a dynamic and efficient learning environment that promotes active participation and personalized learning for students. In addition to these components, the use of ICT tools also requires proper training for teachers to effectively integrate them into their teaching methods. Overall, the components of ICT tools play a crucial role in modern education by providing a diverse range of resources for teaching and learning that cater to different learning styles and needs of students.

The use of Information and Communication Technology (ICT) tools in teaching and learning has become increasingly prevalent in education. These tools consist of various components that aid in enhancing the teaching and learning process. Firstly, hardware components such as computers, laptops, tablets, interactive whiteboards, and projectors provide access to digital resources and facilitate interactive learning. Secondly, software components such as educational apps, learning management systems, and multimedia programs offer a wide range of instructional materials and activities for students. Additionally, communication tools like email, chat applications, and video conferencing platforms enable students to collaborate with their peers and teachers remotely.

Moreover, ICT tools also include internet connectivity, which allows access to a vast amount of information and enables students to engage in online research and exploration of various topics. These components of ICT tools play a crucial role in creating an interactive and engaging learning environment that motivates students to actively participate in their learning process. As technology continues to advance, the integration of these components in education is essential to prepare students for the digital age and enhance their critical thinking, problem-solving, and communication skills.

FURTURE ASPECTS OF ICT TOOLS IN TEACHING AND LEANRING

The future of ICT tools in teaching and learning holds endless possibilities for enhancing the educational experience. With the rapid advancement of technology, educators will have a wide range of tools at their disposal, making teaching more interactive and engaging.

One of the most exciting future aspects is the use of virtual and augmented reality, which can create immersive learning environments and make abstract concepts more tangible. Artificial intelligence will also play a crucial role in personalizing the learning experience for students, by adapting to their individual needs and learning styles.

Additionally, ICT tools such as online platforms, video conferencing, and digital textbooks will continue to revolutionize distance learning and make education more accessible. Furthermore, the integration of ICT in classrooms will enable students to collaborate and communicate with peers from all around the world, fostering cultural understanding and global citizenship.

As we move towards a more technology-driven society, the future of ICT tools in teaching and learning is full of exciting prospects that can transform the way we acquire knowledge and skills.

CONCULUSION

With the rapid advancement of technology, the future of ICT tools in teaching and learning is an exciting and promising one. In the coming years, ICT tools are expected to revolutionize the traditional methods of teaching and learning by providing more interactive and personalized learning experiences. Virtual and augmented reality will become more prevalent in classrooms, allowing students to immerse themselves in a 3D learning environment. Artificial intelligence will also play a significant role in education, providing adaptive and personalized learning paths for students based on their individual needs and abilities. Student-teacher interactions will also be enhanced through the use of chatbots and other communication tools, making learning more accessible and efficient.

Furthermore, online learning platforms and digital resources will continue to expand, providing students with access to a vast array of educational materials from anywhere in the world. As technology continues to advance, the possibilities for using ICT

tools in teaching and learning are endless, and it is an exciting time to be a part of the education field. The future of ICT tools in teaching and learning holds great potential for creating a more engaging, efficient, and inclusive educational experience for students of all ages.

RECOMMENDATION FOR ICT TOOLS IN TEACHING AND LEARNING

- In today's digital age, the use of ICT (Information and Communication Technology) tools in teaching and learning has become crucial.
- These tools have immense potential in enhancing the quality of education by providing interactive and engaging learning experiences.
- As a result, it is essential for educators to be knowledgeable about the various ICT tools available and how they can be integrated into their teaching practices.
- My recommendation would be for teachers to explore and utilize a diverse range of ICT tools, such as interactive whiteboards, educational apps, virtual simulations, and online collaboration platforms, to cater to the different learning styles and needs of their students.
- Furthermore, continuous training and professional development in utilizing these tools effectively would be beneficial for teachers to fully harness their potential in promoting a more student-centered and innovative learning environment.
- By incorporating ICT tools in teaching and learning, educators can create a dynamic and inclusive classroom where students are actively involved in their own learning process.
- This not only improves students' academic performance but also equips them with essential digital literacy skills necessary for the 21st-century job market.

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RELEVANCE OF TEACHING AND LEARNING THROUGH BLENDED MODE IN HIGHER EDUCATION

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Abstract - The development of a blended learning approach to enhance surveying education is discussed. The need for this learning strategy is first investigated based on a major review of the surveying course, including analysis of its content, benchmarking with key national and international universities, and surveys of key stakeholders. Appropriate blended learning methods and tools that couple learning theory principles and developing technical skills are discussed including using learning management systems, flip teaching, collaborative learning, simulation based e-learning, and peer assessment. Two blended-learning tools developed for surveying units are presented as examples. The first is an online interactive virtual simulation tool for levelling, one of the key tasks in surveying. The second is an e-assessment digital marking, moderation and feedback module. Surveys of students showed that they found the interactive simulation tool contributes to improving their understanding of required tasks. Students also found the e-assessment tool helpful in improving their performance and in helping them to focus on the objectives of each activity. In addition, the use of peer e-assessment to improve student learning and as a diagnostic tool for tutors is demonstrated. The paper concludes with a discussion on developing generic skills through authentic learning in surveying education.

INTRODUCTION

The rapid technology change can adversely result in a shift from higher education towards training (Burtch, 2005), i.e. while trying to keep up with new technology, more focus may be put on skill development rather than on learning theoretical principles. Therefore, a balance of the two components should always be maintained. To face this challenge, a blended learning approach, where learning education combines face to face classroom methods with computer-mediated activities (Strauss, 2012), can be used to combine technology with pedagogical principles for the benefit of student learning (Garrison & Kanuka, 2004; Hoic-Bozic et al. 2009).

Learning is an inherently social process, where different strategies for effective learning can be implemented (Strobl, 2007). The use of new technologies in teaching and learning, e.g. e-learning, can assist in both the enhancement of traditional teaching methods and the development of students' technical skills. At present, there are several e-learning technologies available (Garrison, 2011). Many of these address mobility of student learning, which enables students to learn anywhere, anytime, and with various devices (Herrington et al. 2012). These include learning management systems providing a virtual platform for students to access teaching resources and interact with peers and other students, web-based flexible learning environments, and media to encourage collaborative learning among students. In regard to developing technological skills, a wide range of technologies can be used to assist in training students. These can range from videos for demonstration, recording and Reflective analysis purpose to simulation-based e-learning systems.

This paper is an extension of El-Mowafy et al. (2013) and presents a blended teaching approach using surveying education as an example. In addition to classroom learning, it includes online learning and mobile learning. Blended learning encourages the gaining of knowledge coupled with traditional information-gained skills-development learning (authentic learning). Figure 1 shows an illustration of the components of blended learning and its target outcomes. Classroom learning is still considered the largest learning component.

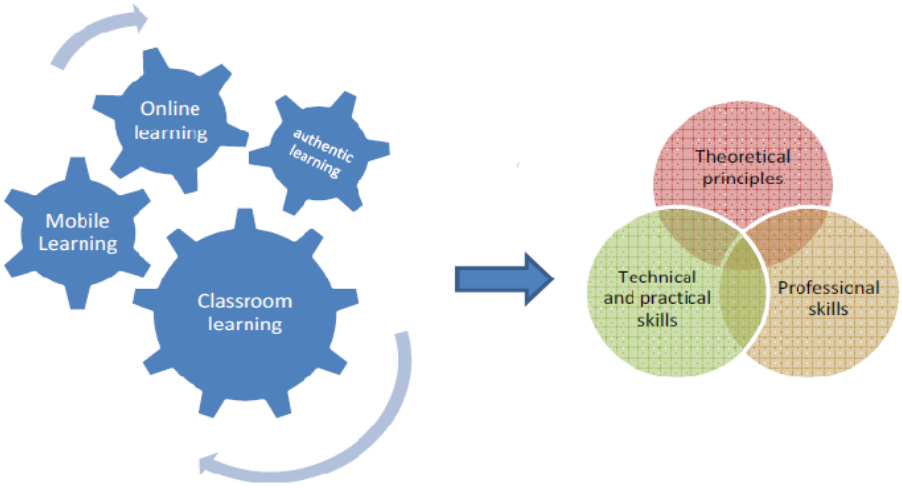

Figure 1

WHY A BLENDED LEARNING STRATEGY IN SURVEYING EDUCATION

Surveying is the science of determining three-dimensional positions on or close to the Earth's surface. Education in surveying has to cover a broad range of fundamental topics in mathematics, physics, engineering and law (e.g. Greenfeld, 2011). Apart from a good understanding of these foundations, a surveyor also has to be proficient in the collection, processing, analysing and presentation of spatial data. Traditionally, the use of technology has always played an important part in surveying and therefore surveying education. It is set to play an ever more important part in surveying education in the future, given the expanding use of satellite-based measurements, laser scanner devices, online data transfer, etc. In such an environment, students need to have a solid understanding of the theoretical principles underpinning surveying as well as developing the technological skills that rely heavily on authentic practical learning (e.g. work integrated learning). This practical skill development places a very high demand on tutors (e.g. one-to-one training), and resources such as survey instruments and finance (e.g. highly specialised and costly instruments). Therefore, surveying teaching and learning strategies have to adopt more suitable methods to both enhance student learning and satisfy the needs of the industry and the profession.

FACING CHALLENGES THROUGH PERIODIC COURSE REVIEW

In the light of continuous changes in technology, teaching methods and required skills of study, there is a continuous need for a course to be evaluated in areas such as:

- completeness and appropriateness of content
- course structure (e.g. topics build up on previous ones)
- skills required (e.g. industry demand)
- teaching and assessment methods (e.g. classroom versus authentic learning)
- competitiveness with other courses and/or universities (e.g. unique elements).

These aspects are usually addressed through major course reviews, which should be done rather frequently (e.g. every five years) in areas of rapid changes. While each course review has its own unique aspects, reviews should consider the six main steps as illustrated in Figure 2.

In surveying, the main aspects illustrated in Figure 2 have recently been addressed during a major course review of the Bachelor of Surveying offered by the Department of Spatial Sciences at Curtin University, Perth, Australia. It was concluded that a blended learning strategy was the appropriate approach to achieve the program goals of enhancing the learning process, developing generic and technical skills, and rectifying course structure problems identified. The main points from the review that supported these conclusions were.

Step 1: Analysing existing course

Analysis of the existing course was done internally, involving mostly course team members within the department. Based on past experiences within the course, strengths, Kuhn & Snow 135 and weaknesses were identified. Key outcomes regarding the teaching aspects identified a good balance between theory and practical exercises together with work placements as a major strength. Weaknesses identified were in part related to inconsistent connection between content, but mostly identified a rather low focus on generic skills such as problem solving, communication and project management skills. The latter are recognised as important skills in the 21st century (e.g. Griffin et al., 2012).

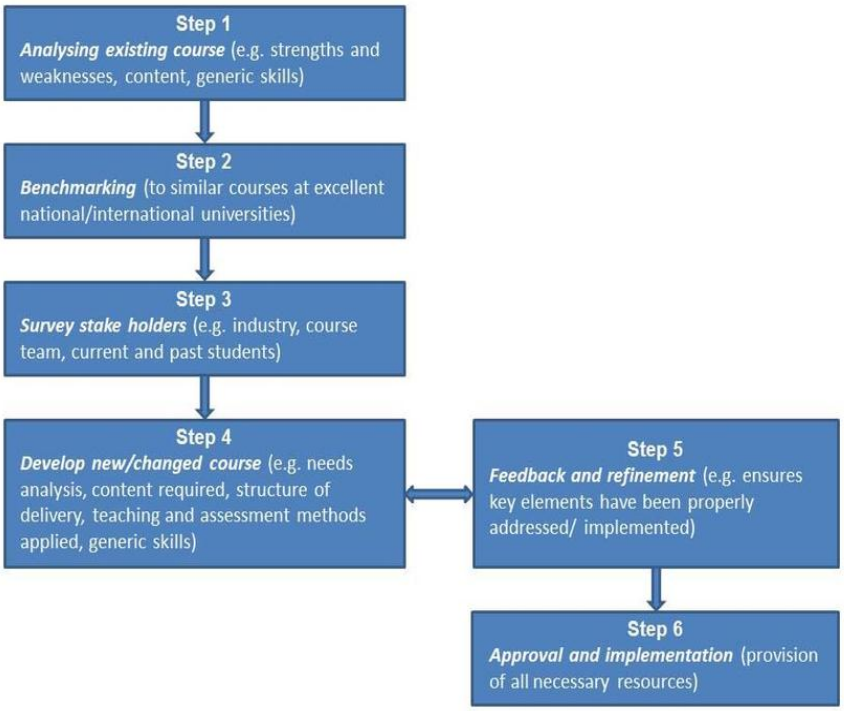

Figure 2- General layout of a course review

Step 2: Benchmarking

Benchmarking with eight key national/international universities offering similar courses was done in order to assess the current course content and to identify any major deficiencies. This information is important for future strategic decisions such as focusing on market niches and/or addressing shortcomings in content and the distribution of teaching resources to cover content. It was evident from this exercise that the current course structure and content are closely aligned to the surveying courses offered by the eight benchmarking universities chosen.

Step 3: Survey stakeholders

Important information was sourced through various surveys of key stake holders such as industry employers, professional organisations and current students and staff at the university. Assisted by the Surveying and Spatial Science Institute (SSSI) a series of industry focus groups were held to discuss the course in general and provide specific feedback on current content, student graduate abilities and future surveying education directions. Based on the graduate employability indicators proposed by Oliver et al. (2010) and Oliver (2011) a questionnaire was sent out to all major employers and licensed surveyors in the state in order to gauge employer perceptions. Overall, the outcomes of the focus groups and the questionnaire responses agreed that graduates have a knowledge level appropriate to the industries' needs, show great enthusiasm for their work and have a high willingness to learn. On the downside, the focus groups and surveys identified a lack in some generic skills such as team work, critical thinking, communication, the ability to solve

complex problems, a poor perception of professional worth and the lack of ability to integrate new technologies into current surveying practice. Interestingly, the same lack of generic skills was identified by the internal assessment of the existing course.

Step 4: Develop new/changed course

Some of the units within the course have also been redesigned and re-organised in order to allow a scaffolded assessment approach, and to blend the practical assessment with formative assessment. This approach was adopted to reinforce development of generic and technical skills, as it appears that student satisfaction is closely related to authentic surveying fieldwork tasks.

Step 5: Feedback and refinement

The new course structure was discussed with all stakeholders to gain feedback on the ntended changes to the course. Refinement of the new course structure was mostly done internally. This evolved around the optimal inclusion of new units, content and scaffolded assessments across units. Feedback from industry and students showed their satisfaction with the proposed changes.

Step 6: Approval and implementation

After gaining the satisfaction of all stake holders, approval for the necessary course changes was obtained by the University. Once approved, all changes were made in the implementation phase. This required the provision of all the necessary resources.

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A REVIEW ON ROLE OF ICT TOOLS IN HIGHER EDUCATION

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Abstract - Information and Communication Technology (ICT) tools have become indispensable in today's digital age, revolutionizing the way we interact, work, and access information. From cloud computing and data analytics to social media platforms and collaboration software, ICT tools have transformed traditional ways of communication, problem-solving, and decision-making processes across various industries. With advancements in technology, ICT tools continue to evolve, offering greater convenience, efficiency, and connectivity. However, while ICT tools present numerous benefits, challenges such as cybersecurity threats, privacy concerns, and digital skills gaps need to be addressed to fully leverage their potential. In essence, ICT tools have reshaped how we navigate the modern world, providing vast opportunities for innovation, growth, and transformation in our personal and professional lives.
Keywords: *Digital age, decision making, cyber security, transformation.*

INTRODUCTION:

As we all are living in a digital age and the learners of today's generation have different needs and requirements. The learning must not be limited to the classroom only; it must be confined outside the classroom also. Digital technology has the potential for making a substantial contribution to enriching education for all areas of Curriculum that strives for Excellence. If the technology is effectively used, it will result in enhancing the teaching and learning by digital technology (Edinburgh, 2016). In our day-to-day life, the advancement of technology is increasing all over the world and in everyone's life. Many jobs were not having any requirement of technology but now are in dire need of technology (Costley, 2014). Many individuals are using technology in their daily routine of life. The individual's day starts with their alarm on the phone and ends up with what's app messages. Many Youngsters feel happy and satisfied to make use of technology and due to this, we can integrate technology in education for making the teaching-learning process systemic and efficient so that the learners can learn in a good and happy mood.

Technology has originally come from the Greek word techno logia. The word techno logia became technology and it comes into existence. The word was used in the seventeenth century for the first time. Many people think that the word technology only means that the mobile, internet computer, laptop etc. They further believe that technology is nearby to them, the growth among them like new languages, the building of new websites and the new creativity in the field of computers that is only the technology. But if we talk about the proper meaning of technology, it means the scientific knowledge that can be used for solving many practical problems especially in the field of commerce and industry. Various types of materials and methods are being used for solving the practical problems that denote that the technology is not restricted to computer and internet only. It is much wider than that. The satellite and switchboards in our houses are also a part of technology. Technology Changes because the needs and requirements of human beings are unlimited.

For the successful completion of various activities and tasks in different sectors like the use of technology in the educational sector have been applied for improving and making the teaching learning process more appropriate, effective and efficient for the students as well as for the teachers. Students in today's schools are lucky enough to have access to many technology equipment's and Internet technologies (Baytak et. al., 2011). While incorporating technology in teaching makes lessons fun and joyful for the students, the students can learn at their own pace that is at anywhere and at any time they can easily access the desired content with the help of technology and can learn easily. "How teachers learned subject matter is not necessarily the way their student will need to be taught in the 21st century" (Niess, 2005, p. 509). Technological use in teaching and learning can bring improvement in the performance of students and can bring positive learning outcomes. While making use of technological equipment like Interactive Whiteboard, the interest

among learners can be increased towards learning. The students can learn easily and then the classroom will become a happier place of learning for each student whether the child is slow learner, backward, or a disabled. Teachers can teach the students by applying various technological skills which also helps them for improving their teaching in a more advanced way i.e. according to the need and interest of the child the teacher designs his or her teaching pedagogy. ICT tools, or Information and Communication Technology tools, have revolutionized the landscape of higher education. These tools have become an integral part of the learning process, providing students and educators with innovative ways to enhance their teaching and learning experiences. With the advancements in technology, students now have access to a vast array of tools such as virtual classrooms, online libraries, educational apps, and simulation software. These tools not only make learning more interactive and engaging but also enable students to collaborate and communicate with their peers and instructors from anywhere in the world. Additionally, ICT tools have made it possible for institutions to offer online courses and degree programs, providing students with flexibility and accessibility to education. Moreover, these tools have also improved the efficiency and effectiveness of administrative tasks, allowing for smoother operation of higher education institutions. Overall, ICT tools have played a significant role in shaping the modern higher education system, making it more dynamic and adaptable to the changing needs of students and educators alike.

ICT tools, also known as Information and Communication Technology tools, have revolutionized the field of higher education by providing an array of digital resources that enhance the learning experience. These tools include software applications, online platforms, and devices such as laptops, tablets, and smartphones. They have the ability to transform traditional classrooms into dynamic learning environments by facilitating communication, collaboration, and information sharing among students and teachers. With the use of ICT tools, higher education institutions can offer a more personalized and interactive learning experience for students, catering to their individual needs and learning styles. Furthermore, these tools enable students to access a vast amount of educational content from anywhere at any time, making learning more convenient and flexible. Instructors can also use these tools to create multimedia-rich lectures, conduct virtual discussions and assessments, and provide real-time feedback to students. Therefore, it is evident that ICT tools have significantly contributed to the improvement of teaching and learning in higher education, making it more efficient, effective and engaging for both students and educators.

REVIEW OF LITERATURE:

The history of ICT tools in teaching and learning dates back to the late 20th century when personal computers became more accessible for educational purposes. The introduction of multimedia technologies such as projectors, CD-ROMs, and interactive whiteboards revolutionized the traditional methods of teaching and provided a more engaging learning experience for students. With the advancement of technology, the use of internet-based tools such as online learning platforms, video conferencing, and educational websites expanded the reach of education beyond the confines of the classroom. The emergence of mobile devices and wireless networks further enhanced the integration of ICT tools in education, making it possible for students to access learning materials anytime and anywhere. Today, ICT tools have become an essential part of teaching and learning, with educators constantly exploring new ways to utilize technology to improve student engagement, collaboration, and overall learning outcomes. The evolution of ICT tools in teaching and learning has undoubtedly transformed the educational landscape and continues to shape the future of education.

The history of ICT tools in teaching and learning can be traced back to the early 20th century with the introduction of film and radio as instructional aids. However, it was not until the 1970s and 1980s that the use of technology in education truly began to advance with the development of desktop computers and educational software. This laid the foundation for modern ICT tools such as interactive whiteboards, projectors, and educational software that are commonly used in classrooms today. With the rise of the internet in the 1990s, access to a vast amount of information and resources became

available to educators and students, leading to the integration of technology in teaching and learning across various subjects. The 21st century has seen a rapid evolution of ICT tools in education, with the emergence of online learning platforms, virtual reality simulations, and mobile devices. These tools have revolutionized the traditional classroom setting, making learning more engaging, interactive, and accessible for students. As technology continues to advance, it is evident that ICT tools will play a significant role in shaping the future of education.

ICT tools, also known as Information and Communication Technology tools, have revolutionized the field of higher education by providing an array of digital resources that enhance the learning experience. These tools include software applications, online platforms, and devices such as laptops, tablets, and smartphones. They have the ability to transform traditional classrooms into dynamic learning environments by facilitating communication, collaboration, and information sharing among students and teachers. With the use of ICT tools, higher education institutions can offer a more personalized and interactive learning experience for students, catering to their individual needs and learning styles. Furthermore, these tools enable students to access a vast amount of educational content from anywhere at any time, making learning more convenient and flexible. Instructors can also use these tools to create multimedia-rich lectures, conduct virtual discussions and assessments, and provide real-time feedback to students. Therefore, it is evident that ICT tools have significantly contributed to the improvement of teaching and learning in higher education, making it more efficient, effective and engaging for both students and educators.

FUTURE ASPECTS OF ICT TOOLS:

The future of education is closely tied to the advancements in technology, particularly in the field of Information and Communication Technology (ICT). As we continue to see rapid developments in ICT tools, it is inevitable that they will play a major role in teaching and learning. In the years to come, we can expect to see more personalized and interactive learning experiences through the use of virtual and augmented reality, artificial intelligence, and other emerging technologies. These tools will not only enhance the accessibility and flexibility of education but also improve student engagement and collaboration. Along with this, there will be a shift towards a more digital and paperless approach in classrooms, making learning more efficient and eco- friendlier. Moreover, ICT tools will also aid in bridging the gap between traditional and online learning, providing students with a more hybrid learning experience. The future of ICT tools in teaching and learning is bright, and it is clear that they will continue to revolutionize education for generations to come. With the constant evolution of technology, it is crucial for educators to adapt and incorporate these tools in order to prepare students for a digitally-driven world.

The future of education is rapidly evolving with the advancements in Information and Communication Technology (ICT) tools. These tools are transforming the traditional methods of teaching and learning, making education more interactive, engaging, and accessible. In the years to come, ICT tools will continue to play a crucial role in shaping the future of education by providing more personalized learning experiences, breaking down geographical barriers, and promoting collaborative learning. Virtual and augmented reality technologies will allow students to experience a more immersive learning environment, while artificial intelligence will provide personalized learning paths for each student. The use of big data and analytics in education will help teachers to track student progress and tailor their teaching methods accordingly. Moreover, the integration of ICT tools in classrooms will promote active learning, critical thinking, and problem-solving skills among students. With the increasing use of mobile devices and internet connectivity, learning will become more flexible and convenient, allowing students to access educational materials and resources anytime, anywhere. In conclusion, the future of teaching and learning looks promising with the endless possibilities offered by ICT tools, making education more efficient, effective, and inclusive for all learners.

CONCLUSIONS:

Information and Communication Technology (ICT) tools play a crucial role in enhancing

efficiency, productivity, and communication in various fields. The use of ICT tools allows for faster data processing, easier information sharing, and improved decision-making processes. With the advancements in technology, ICT tools have become more user-friendly and accessible, leading to increased integration in businesses, education, healthcare, and many other sectors. However, it is essential to consider issues such as data security, digital divide, and ethical use of technology when utilizing ICT tools. Overall, ICT tools have revolutionized the way we work, learn, and communicate, offering great potential for further innovation and development in the future.

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MODERN TECHNOLOGY IN TEACHING AND LEARNING

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Abstract - Modern Teaching Techniques have been spread all over the world, which is useful and easy for teachers. Modern Teaching Techniques educate children well and make them understand clearly. In this era, there is an increased usage of the internet in educational applications; this could mean that students and teachers will increasingly make use of technology within open and flexible learning systems. Technology plays an important role in enhancing and developing our learning system. Intended outcomes as well as unintended results of using Modern Teaching Techniques for teacher professional development need to be explored. Certain skills and capabilities of using different Modern Teaching Technologies are necessary for students as well as teachers. Therefore it is necessary to prepare them for the age of Modern Teaching Technology.
Keyeords: Modern Teaching Techniques Objectives Classification of Teaching Techniques Teaching Techniques, Medias, Benefits Preparation for Modern Age

INTRODUCTION

Modern technology has significantly transformed teaching and learning, offering numerous benefits and new opportunities. There are many key areas where technology is making a substantial impact. In this era, there is an increased usage of the internet in educational applications; this could mean that students and teachers will increasingly make use of technology within open and flexible learning systems. Technology plays an important role in enhancing and developing our learning system. This transformation is driven by a range of innovative technologies, including artificial intelligence, virtual reality, and mobile learning applications, which collectively contribute to creating dynamic and inclusive learning environments. As educators and students navigate this digital age. Understanding and leveraging modern technological advancements becomes essential for fostering a more connected, informed, and adaptable educational experience.

IMPORTANCE

Technology facilitates global learning communities, enabling students and educators to connect and collaborate across geographical boundaries. Thus the education of tomorrow should be able to play its role more effectively by making the individual creative, innovative and effective. Modern technology plays a crucial role in transforming teaching and learning, significantly enhancing the educational experience in several key ways. Technology & knowledge would play an important role in value addition to our core competence of natural and human resources of sustained development. Modern Teaching Technique is important and most preferred in the technological age. Nowadays, as classes are modified and equipped with Modern teaching, Adaptive learning technologies and data analytics enable personalized instruction tailored to individual student needs . Teachers can teach the students with more depth and efficiency and also clear all their doubts with Modern Teaching Techniques. Modern technology provides tools that make education more accessible to all students, including those with disabilities. Assistive technologies like screen readers, speech-to-text software, and customizable digital content ensure that educational resources are inclusive and cater to a wide range of needs.

These techniques help to attain the following elements

Modern technology has revolutionized teaching methods, creating more dynamic, engaging, and effective learning environments. Here are several contemporary teaching methods enabled by technology as

1. Present the material in more interesting and attractive way
2. Guide and help the students in enriching the qualitative material
3. Make best use of time and coach the students
4. Provide individualized instruction

5. Direct the students toward cooperative as well as collaborative learning activities
6. Prepare the learning material for students, rather teaching in conventional situations
7. Diagnose the learning of students and help them to overcome their study problems.

TEACHING METHOD

Brain Storming - It is a group creativity technique that was designed to generate a large number of ideas for the solution of a problem. Problem solving is a process to choose and use the effective and beneficial tool and behaviours among the different potentialities to reach the target. It contains scientific method, critical thinking, taking decision, examining and reflective thinking.

Personalized learning - It tailors instruction to individual students' strengths, needs, and interests. Technology plays a crucial role in adapting content and pace for each learner. Adaptive Learning Software: Programs like Dream Box and Smart Sparrow customize learning experiences based on student performance Data Analytics: Educators use analytics to monitor progress and adjust instruction accordingly

Programmed Learning – It is a research-based system which helps learners work successfully. The learning material may be a textbook or teaching machine or computer. The medium presents the material in a logical and tested sequence. The text is in small steps or larger chunks. After each step, learners are given a question to test their comprehension. Then immediately the correct answer is displyed. This means the learner at all stages makes responses, and gives immediate knowledge of results.

Inquiry Based Learning - It starts by posing questions, problems or scenarios—rather than simply presenting established facts or portraying a smooth path to knowledge. The process is often assisted by a facilitator. Inquirers will identify and research issues and questions to develop their knowledge or solutions. The inquiry-based instruction is principally very closely related to the development and practice of thinking skill and effective achievement.

Collaborative learning – It encourages students to work together on projects and assignments, promoting teamwork and communication skills Technology Used Cloud-Based Tools: Google Drive and Microsoft One Drive enable real-time collaboration on documents and presentations Project Management Software: Tools like help organize group tasks and track progress.

Dramatization - One of the Modern teaching techniques teaches students how to behave in a situation by living it. Physical environment/costumes/accessories are important and they effect the concentration of the students. Students use their own imagination thus improving their creativeness. It provides direct involvement in learning on the part of all students, improves their language usage, communicating/speaking and listening skills and allows for the exploration of solutions. The various types of Dramatization are Informal drama, Role playing, Formal drama, Puppets, Pantomime and Finger game.

Simulations and virtual labs – It provide hands-on learning experiences in a controlled digital environment, making complex or dangerous experiments accessible and safe.
Technology Used Simulation Software: Programs like PhET Interactive Simulations offer virtual experiments in science and engineering Virtual Labs: Online labs that mimic the experience of a physical laboratory.

M Learning leverages mobile devices to provide educational content and experiences on-the-go. This method is particularly useful for adult learners and professionals who need flexible learning options Technology Used Educational Apps: Apps like Duo for language learning and Khan Academy for a variety of subjects Podcasts and Audiobooks: Audio content that can be accessed anytime, anywhere.

CONCLUSION

In conclusion, modern technology has profoundly transformed the landscape of teaching and learning, providing numerous benefits and opportunities for educators and students alike. By integrating tools such as interactive learning platforms, personalized learning systems, collaborative tools, and immersive technologies like VR and AR. Education has become more engaging, accessible, and effective Ultimately, the thoughtful integration of modern technology in teaching and learning holds the promise of creating a more dynamic,

interactive, and inclusive educational landscape that benefits all learners.

ENHANCING ENGLISH LANGUAGE LEARNING THROUGH BLENDED LEARNING: A MODEL FOR SENIOR SECONDARY SCHOOLS IN ALIGNMENT WITH THE NATIONAL EDUCATION POLICY

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Abstract- This essay explores the integration of blended learning in English language instruction within CBSE schools, aligning with the objectives outlined in the National Education Policy (NEP). Blended learning, characterized by a combination of traditional face-to-face instruction and online learning experiences, presents opportunities to enhance English language learning in diverse and dynamic ways. The abstract begins by defining blended learning and highlighting its advantages, including personalized learning, flexibility, enhanced engagement, data-driven instruction, and collaboration. It then outlines a comprehensive model for implementing blended learning in schools, encompassing key components such as needs assessment, selection of digital resources, pedagogical strategies, integration of assessments, teacher training, and monitoring and evaluation. By adopting a blended learning approach, schools can cater to the individual needs and preferences of students, provide access to high-quality English language resources, and foster a deeper understanding of language concepts. Furthermore, the abstract emphasizes the importance of aligning blended learning practices with the goals and standards set forth in the NEP, thereby ensuring that English language instruction remains relevant, inclusive, and effective in preparing students for success in the globalized world. Ultimately, this abstract serves as a concise overview of the potential benefits and practical considerations associated with implementing blended learning in schools to enhance English language learning outcome .

Keywords: Blended learning, English language instruction, CBSE schools, National Education Policy, pedagogical strategies

INTRODUCTION

“Education is the key to unlocking the world. It is the passport to freedom“ Oprah

In the realm of education, the integration of technology has revolutionized traditional teaching methods, giving rise to innovative approaches such as blended learning. Blended learning combines traditional face-to-face instruction with online learning experiences, offering a flexible and personalized approach to education. In the context of English language learning in CBSE (Central Board of Secondary Education) schools, embracing a blended learning model not only aligns with the objectives of the National Education Policy (NEP) but also caters to the diverse needs of learners in the digital age. This essay explores

the concept of blended learning, its advantages, and provides a comprehensive model for its implementation in CBSE schools to enhance English language learning.

Understanding Blended Learning: Blended learning, often referred to as hybrid learning, integrates traditional classroom teaching with online learning components. It combines face-to-face interactions with digital resources, allowing for a more personalized and adaptive learning experience. The key components of blended learning include in-person instruction, online learning platforms, multimedia resources, collaborative activities, and assessment tools. By leveraging technology, blended learning facilitates self-paced learning, fosters collaboration, and promotes active engagement among students.

ADVANTAGES OF BLENDED LEARNING IN ENGLISH LANGUAGE LEARNING :

Personalised Learning: Blended learning caters to individual learning styles and paces, allowing students to progress at their own speed. Adaptive learning platforms can provide customized content and feedback tailored to each student's needs, enhancing comprehension and retention of English language concepts.

Fleixbility and Accessibility : With online resources accessible anytime and anywhere, blended learning offers flexibility for students to engage with English language materials beyond the confines of the classroom. This accessibility is especially beneficial for students with diverse learning needs and those facing geographical or logistical constraints.

Enhanced Engagement : Multimedia resources, interactive activities, and gamified learning modules can make English language learning more engaging and enjoyable for students. Blended learning encourages active participation through discussions, group projects, and real-world applications of language skills, fostering a deeper understanding of the subject matter.

Data Driven Instructions Blended learning platforms collect valuable data on students' progress, performance, and areas of difficulty. Teachers can use this data to identify learning gaps, adapt instructional strategies, and provide targeted interventions to support English language development effectively.

Collaboration and Communication : Blended learning encourages collaboration among students through online forums, discussion boards, and virtual group projects. Collaborative learning activities promote peer-to-peer interaction, communication skills, and cultural exchange, enriching the English language learning experience.

Model for School : Incorporating a blended learning model into English language teaching in schools requires careful planning, resources, and support. The following model outlines the key components and strategies for implementing blended learning effectively

Needs Assessment and Goal Setting: Conduct a needs assessment to identify students' proficiency levels, learning preferences, and technology access. Set clear learning objectives aligned with the CBSE English language curriculum and the proficiency levels outlined in the NEP.

Selection of Digital Resources Choose appropriate online platforms, software, and digital resources for English language learning, considering factors such as accessibility, interactivity, and alignment with curriculum standards. Utilize a mix of multimedia resources, interactive tutorials, language learning apps, and virtual reality simulations to cater to diverse learning styles and preference.

Blended Learning Pedagogy Design instructional activities that blend face-to-face instruction with online learning experiences, incorporating a variety of teaching methods such as lectures, discussions, multimedia presentations, and hands-on activities. Foster active learning through collaborative projects, peer feedback, and real-world applications of language skills, promoting critical thinking, creativity, and problem-solving.

Amalgamation of Assessment Develop formative and summative assessments that assess English language proficiency across the four language skills: listening, speaking, reading, and writing. Use online assessment tools, quizzes, self-assessments, and performance-based tasks to evaluate students' progress and provide timely feedback on their language development.

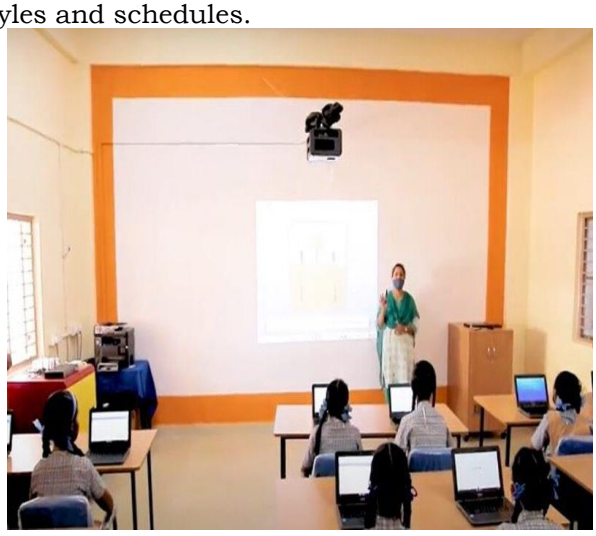
Teachers Training and Support : Provide professional development opportunities for teachers to enhance their digital literacy skills, pedagogical knowledge, and proficiency in integrating technology into English language instruction.

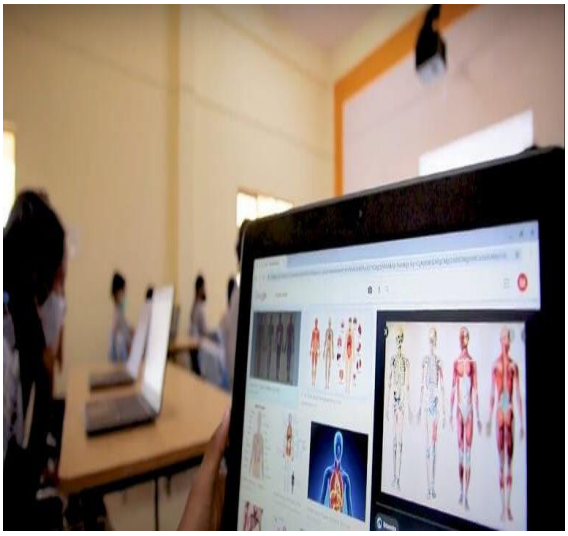
Monitoring and Evaluation Monitor students' progress and engagement with online learning activities, tracking data on participation, completion rates, and performance outcome. Evaluate the effectiveness of the blended learning model through student feedback surveys, classroom observations, and academic assessments, making adjustments as needed to optimize learning outcomes.
Example of Grade 12 English . Let's consider a chapter from the Class 12 English curriculum, specifically from the "Flamingo" textbook, titled "The Last Lesson" by Alphonse Daudet. This chapter revolves around the theme of language preservation and the impact of political changes on education. Here's how you could integrate blended learning into teaching this chapter.

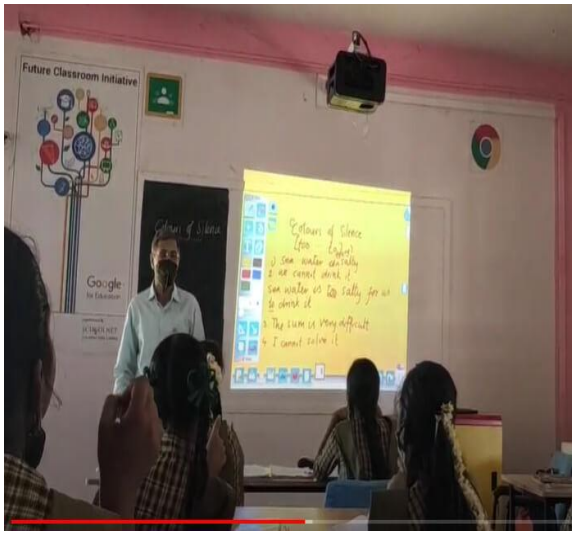
Pre-Reading Activity Before diving into the text, students could engage in a pre-reading activity using blended learning. For example, they could watch a short video summarizing the historical context of the Franco-Prussian War and its consequences on language and education in the region. This multimedia resource could be shared through the school's learning management system or a video-sharing platform .

Reading and Analysis : During the reading of the chapter, students could utilize online annotation tools or collaborative document editing platforms to annotate the text in real-time. Teachers can assign specific passages for analysis and discussion, where students can highlight key literary devices, themes, and character development using digital markers. This collaborative approach encourages active engagement and critical thinking.

Virtual Discussion Forums After reading the chapter, students could participate in virtual discussion forums hosted on the school's online platform. Here, they can post their reflections on the themes, characters, and plot developments in "The Last Lesson." Teachers can moderate these discussions, pose thought-provoking questions, and encourage peer-to-peer interaction. This asynchronous discussion format accommodates diverse learning styles and schedules.





Multimedia Presentations As part of a blended learning assignment, students could create multimedia presentations exploring the cultural significance of language and the impact of political events on education. They could use presentation software like PowerPoint or Google Slides to incorporate images, videos, and audio clips that contextualize the themes of the chapter. These presentations can be shared with classmates and evaluated based on content, creativity, and clarity of expression.

Online Quizzes and Assessment To assess comprehension and analytical skills, teachers could design online quizzes or assessments using the school's learning management system or quiz-making tools. These assessments may include multiple-choice questions, short answer prompts, and essay questions related to the chapter's content and themes. Instant feedback provided by the online platform allows students to track their progress and areas for improvement.

By integrating blended learning into the teaching of "The Last Lesson," teachers can create a dynamic and interactive learning experience that caters to the diverse needs of students while fostering deeper engagement with the text and its themes

CONCLUSION

In conclusion, embracing a blended learning model in English language teaching offers immense potential for enhancing learning outcomes in schools in alignment with the National Education Policy (NEP). By integrating technology with traditional teaching methods, blended learning provides opportunities for personalized learning, flexibility, engagement, collaboration, and data-driven instruction. The proposed model outlines a systematic approach for implementing blended learning effectively, emphasizing the importance of needs assessment, pedagogical innovation, teacher training, and ongoing evaluation. By harnessing the power of blended learning, CBSE schools can empower students to develop essential English language skills, equipping them for success in the 21st-century globalized world.

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IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) ON ACADEMIC PERFORMANCE OF STUDENTS AND TEACHING LEARNING PROCESS

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Abstract - Impact of Information and Communication Technology (ICT) will assist in teaching process to the Modern requirements. It replaces older traditional teaching methods with a technology-based teaching and learning tools and facilities. In India, ICT is considered as one of the leading tool in transforming the country to the future development. The Ministry of Education, through the new education policy 2020 (NEP), insights the importance of technology-based teaching and learning process in school education as well as higher education. This study aims to analyze teachers' perceptions and student's academic performance on effectiveness of ICT in teaching and learning process. Using ICT, a teacher may convey teaching to students at academic levels in a way that is engaging and simple to grasp. Teachers' well-equipped preparation with ICT tools and facilities is one of the main factors in success of technology-based teaching and learning. In India, various professional development training programs for teachers also played a key role in enhancing students' quality learning. For the future studies, there is a need for consideration of other aspects of ICT integration especially from student point of view in regard to using new technology like artificial intelligence (AI) and chatgpt and how they affect students learning process or adverse effect on their skills.
Keywords: ICT, NEP, ICT tools, AI, Chatgpt.

INTRODUCTION

ICT resemble for information and communication Technologies, Including computers, various other type of helpful electronic devices, and internet Connections used to manage and transmit Information for instructional reasons. As suggested by Ghosh, 2017, the rapid advancement of Information and Communication Technologies (ICTs) has transformed various aspects of our lives, including education, healthcare, commerce, and communication. The exponential growth of ICTs has led to an explosion of digital data, revolutionizing the way we access, process, and disseminate information. The education system has undergone significant transformations with the integration of technologies. In recent years, ICTs have played a critical role in shaping various fields, including education. This review paper aims to provide a comprehensive overview of the current state of ICTs in academic performance of students and teaching learning process, highlighting the latest trends, innovations, and research findings. By analyzing existing literature and recent advancements, this paper seeks to identify emerging patterns, challenges, and opportunities for future research and development in the field. Through this review, I hope to contribute to the ongoing dialogue on the transformative potential of ICTs and their impact on advancement of teaching learning process and student academic performance. Now, ICT has taken center stage in national and international discussions in this digital era simultaneously. ICT has become a vital aspect of education system. It is shaping future of India in various ways in terms of teaching learning and evaluation (AICTE, 2021). The widespread adoption of Information and Communication Technologies (ICTs) has transformed the education sector, offering new opportunities for teaching, learning, and assessment. ICTs have the potential to enhance students' academic performance, improve their cognitive skills, and increase their engagement with learning materials are such as Digital Resources, such as e-books and online tutorials, have improved access to information and enhanced learning experiences (Bhattacharjee & Deb, 2016). Online platforms have enabled flexible learning, increased student engagement, and provided opportunities for personalized learning. Multimedia Tools such as videos and interactive simulations have enhanced student engagement and improved learning outcomes.

ROLE OF ICT IN TEACHING LEARNING PROCESS

The role of ICT in the teaching process is multifaceted and transformative, revolutionizing how teachers teach and students learn. Some key roles of ICT in teaching include:

1. **Delivery of instruction** - ICTs enable teachers to deliver instruction through digital means, such as online lessons, videos, and multimedia presentations.
2. **Access to resources-** ICTs provide teachers and students with a vast array of digital resources, including e-books, articles, and online tutorials.
3. **Enhanced engagement-** ICTs facilitates interactive and immersive learning experiences, increasing student engagement and motivation.
4. **Personalized learning-** ICTs enables teachers to tailor instruction to individual students' needs and abilities.
5. **Assessment and feedback-** ICTs provide tools for digital assessment and feedback, streamlining the evaluation process.
6. **Communication and collaboration-** ICTs facilitate communication and collaboration among teachers, students, and parents.
7. **Professional development-** ICTs provide opportunities for teachers' professional growth and development.
8. **Virtual field trips-** ICTs enable virtual field trips and exploration of places and environments that may be difficult to visit physically.
9. **Simulations and modeling-** ICTs allow for simulations and modeling of complex concepts and phenomena.
10. **Data analysis and visualization-** ICTs provide tools for data analysis and visualization, helping teachers and students to make sense of complex data . By integrating ICTs into the teaching process, educators can create a more inclusive, engaging, and effective learning environment.

ROLE OF ICT IN STUDENT'S ACADEMIC PERFORMANCE

The role of ICT in students' academic performance is multifaceted and significant, with various ways in which ICTs can impact learning outcomes. Some of the key roles of ICT in students' academic performance include improved access to information. ICTs provide students with a vast array of digital resources, including e-books, articles, and online tutorials, to access information and learn at their own pace. Enhanced engagement, ICTs facilitate interactive and immersive learning experiences, increasing student engagement and motivation. Personalized learning ICTs enable teachers to tailor instruction to individual students' needs and abilities. Development of digital skills, ICTs provide students with opportunities to develop essential digital skills, including information literacy, online communication, and digital citizenship. Collaboration and communication, ICTs facilitate communication and collaboration among students, teachers, and peers, enhancing teamwork and problem-solving skills. Feedback and assessment, ICTs provide tools for digital assessment and feedback, enabling teachers to track student progress and identify areas for improvement. Increased efficiency: ICTs automate administrative tasks, freeing up time for teachers to focus on teaching and learning. Accessibility and inclusivity: ICTs provide equal access to education for students with disabilities and those from diverse backgrounds. By integrating ICTs into their academic pursuits, students can develop essential skills for success in the digital age.

THE IMPORTANCE OF THE STUDY

ICT's impact on students' academic performance and the teacher learning process includes:Understanding the current state of knowledgeIdentifies areas where ICT has a positive impactReveals gaps in current research and understandingInforming evidence-based practice it Helps teachers and policymakers make informed decisions And Ensures effective integration of ICT in educationIdentifying best practicesHighlights effective ICT implementation strategies like Pinpoints areas for teacher training and support, guiding future research, Informs the development of new research studies. Helps focus research on critical areas . Enhancing teacher professional development Informs teacher training programs. Supports teachers in effectively integrating ICT. Improving student learning

outcomes. Informs strategies to improve academic performance enhances the overall quality of education.

CHALLENGES AND LIMITATIONS:

Issues related to access, equity, and teacher training need to be addressed to ensure effective technology integration

FUTURE DIRECTIONS

1. **Personalized Learning:** AI-powered adaptive learning systems will tailor education to individual students' needs, abilities, and learning styles.
2. **Intelligent Tutoring Systems:** AI-based virtual tutors will provide one-on-one support, real-time feedback, and guidance.
3. **Virtual and Augmented Reality:** Immersive technologies will simulate real-world experiences, enhancing engagement and understanding.
4. **Gamification and Game-Based Learning:** Educational games will become increasingly popular, making learning fun and competitive.
5. **Social Learning Platforms:** Online platforms will facilitate collaboration, communication, and social learning.
6. **Big Data Analytics:** Advanced data analysis will help identify learning patterns, predict student outcomes, and inform instruction.
7. **Natural Language Processing:** AI-powered tools will enable voice-activated learning, enhancing accessibility and convenience.
8. **Internet of Things (IoT):** Connected devices will create interactive, smart learning environments.
9. **Artificial Intelligence-powered Assessment:** AI will automate grading, providing instant feedback and reducing teacher workload.
10. **Digital Twinning:** Virtual replicas of students will simulate learning scenarios, predicting outcomes and informing instruction.

These future aspects of ICT aim to enhance student academic performance by providing personalized, interactive, and immersive learning experiences. Develop effective teacher training programs for technology integration. Address issues related to access and equity in technology integration.

CONCLUSION:

Technologies have transformed the education system, improving teaching, learning, and educational outcomes. Further research is needed to explore the impact of technologies and identify effective strategies for technology integration.

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"महिलाओं में डिजिटल शिक्षा का विस्तार एवं प्रौद्योगिकी की भूमिका"

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सारांश - किसी भी राष्ट्र के सामाजिक और आर्थिक विकास में महिलाओं की भूमिका को अनदेखा नहीं किया जा सकता। महिला और पुरुष दोनों समान रूप से समाज के दो पहियों की तरह कार्य करते हैं और समाज को प्रगति की ओर ले जाते हैं। दोनों की समान भूमिका को देखते हुए यह आवश्यक है कि उन्हें शिक्षा सहित अन्य सभी क्षेत्रों में समान अवसर दिये जाएँ, क्योंकि यदि कोई एक पक्ष भी कमज़ोर होगा तो सामाजिक प्रगति संभव नहीं हो पाएगी। परंतु देश में व्यावहारिकता शायद कुछ अलग ही है, वर्तमान समय में विज्ञान और तकनिकी तीव्र गति से आगे बढ़ रही है और हमारे दैनिक जीवन के लगभग सभी पहलुओं को प्रभावित कर रही है। ऐसे में, इससे हमारी शिक्षा व्यवस्था प्रभावित न हो यह अपरिहार्य होगा। जैसे-जैसे प्रौद्योगिकी उन्नत हो रही, शिक्षा व्यवस्था में हैंड्स-ऑन लर्निंग और डिजिटल लर्निंग जैसे शिक्षण विधियों का महत्त्व बढ़ रहा है जिनसे शिक्षक और छात्र दोनों लाभान्वित हो रहे हैं। वर्ष 2011 की जनगणना के अनुसार, देश में महिला साक्षरता दर मात्र 64.46 फीसदी है, जबकि पुरुष साक्षरता दर 82.14 फीसदी है। उल्लेखनीय है कि भारत की महिला साक्षरता दर विश्व के औसत 79.7 प्रतिशत से काफी कम है।

शब्द कुंजी : महिला शिक्षा , आधुनिक शिक्षा , तकनिकी शिक्षा , प्रोद्योगिकी, डिजिटल शिक्षा

प्रस्तावना-

"आप किसी राष्ट्र में महिलाओं की स्थिति देखकर उस राष्ट्र के हालात बता सकते हैं"-जवाहरलाल नेहरू

वर्तमान युग प्रौद्यौगिकी व विज्ञान का युग है। डिजिटलीकरण अधिकांश शिक्षा प्रक्रियाओं और प्रणालियों को बदलने में सहायक सिद्ध हुआ है। राष्ट्रीय एवं अंतर्राष्ट्रीय स्तर पर हो रहे परिवर्तनों को देखते हुए शिक्षा की दशा और दिशा दोनों ही के लिए डिजिटल शिक्षा एक विशिष्ट माध्यम के रूप में उभरी है, क्योंकि शिक्षा प्रत्येक देश के आर्थिक, सामाजिक, स्वास्थ्य एवं पर्यावरणीय विषय का महत्वपूर्ण तत्व है। विशेष रूप से वर्तमान तकनीकी प्रवृत्तियों के अनुसार शिक्षा प्रणालियों की समझ, अनुकूलन और रूपरेखा से संबंधित मुद्दों पर हाल ही में कोविड-19 महामारी के दौरान उन पर अधिक जोर दिया गया है। जिसने शिक्षा में ई-लर्निंग के उपयोग को गति प्रदान की है। इस महामारी के कारण विश्व के अधिकांश देशों को अपने विद्यालयों को बंद करने का विवशतापूर्ण निर्णय लेना पड़ा। उस समय इंटरनेट के माध्यम से लैपटॉप, डेस्कटॉप, टेबलेट या स्मार्टफोन की सहायता से व्हाट्सएप, जूम, गूगल मीट, यूट्यूब लाइव, फेसबुक लाइव आदि के माध्यम से एक ई-लर्निंग प्लेटफॉर्म तैयार किया गया, जिसने डिजिटल शिक्षा में अभूतपूर्व प्रदर्शन किया। राष्ट्रीय शिक्षा नीति 2020 ने भी डिजिटल शिक्षा तथा प्रौद्यौगिकी पर अपना ध्यान केंद्रित किया है, लेकिन फिर भी डिजिटल शिक्षा कहीं-कहीं पर एक चुनौती के रूप में भी उभरकर सामने आई है। प्रस्तुत शोधपत्र भारत के वर्तमान समय की डिजिटल शिक्षा की आवश्यकता, संभावना व चुनौतियों पर प्रकाश डालता है।

तकनीकी प्रगति ने भी महिलाओ में शिक्षा के प्रसार में मदद की है। महिलाओ में शिक्षा को आसान, आनंदमयी और सुलभ बनाने के लिए उन्नत तकनीकों को शुरू करने में निरंतर अनुसंधान और विकास हो रहा है। महिलाओ के लिए शिक्षा अब उबाऊ और बोझिल नहीं है क्योंकि महिलाओ में शैक्षिक प्रौद्योगिकियों ने इसे दिलचस्प बना दिया है। खेल द्वारा अध्ययन नई तकनीक द्वारा ही संभव हुआ है। कई विश्वविद्यालयों और शैक्षणिक संस्थानों द्वारा दूरस्थ शिक्षा की पेशकश अब उन महिलाओ के लिए की जा रही है जो अपनी व्यक्तिगत समस्याओं के कारण संस्थानों में भाग लेने के लिए औपचारिक शिक्षा प्राप्त करने में सक्षम नहीं हैं। एक समय था, बहुत पहले नहीं, जब महिलाओं को शिक्षा प्राप्त करने की अनुमति नहीं थी। उच्च जातियों के असाधारण रूप से प्रतिष्ठित परिवारों की कुछ महिलाओं ने इसे प्राप्त किया, लेकिन घर से बाहर शैक्षणिक संस्थान में नहीं। लेकिन, आमतौर पर, महिलाओं को औपचारिक शिक्षा से वंचित कर दिया जाता था। यह आधुनिकीकरण की शुरुआत के साथ है कि लोगों का दृष्टिकोण विशेष रूप से उच्च जातियों और वर्गों के प्रति, महिला शिक्षा की ओर बदल गया है। यद्यपि महिलाओं के बीच शिक्षा के स्तर में जबरदस्त सुधार हुआ है, फिर भी यह पुरुषों की तुलना में बहुत पीछे है। यह लैंगिक भेदभाव और पुरुषवाद नहीं है, जो

अतीत में लड़कियों को शिक्षा से वंचित करता था, लेकिन कई कारणों से लड़कियों को शिक्षा के लिए घरों से बाहर नहीं जाने दिया जाता था।वे ईव टीजिंग और शारीरिक खतरों के लिए अतिसंवेदनशील थे। जब वे सड़क पर अकेले घूमते थे, तो भेद्यता बहुत अधिक थी। लेकिन, आज, ऑटोमोबाइल के क्षेत्र में क्रांति ने लड़कियों को शैक्षिक संस्थानों और कोचिंग सेंटरों में जाने के लिए बहुत डर और भेद्यता के बिना सुविधाजनक बना दिया है, चाहे वे संस्थान कितनी भी दूर हों।लिंग भेदभाव से लेकर लिंग समानता तक के लोगों के नजरिए में बदलाव के अलावा तेज और सुरक्षित माहौल के कारण आज महिला छात्रों की संख्या में वृद्धि हुई है। इस प्रकार, महिलाओं के बीच शिक्षा के विस्तार में प्रौद्योगिकी की भूमिका बहुत बड़ी है।

राष्ट्रीय शिक्षा नीति 2020 और महिला शिक्षा -डिजिटल लर्निंग का तात्पर्य सीखने और सिखाने के लिए डिजिटल प्रौद्योगिकियों और उपकरणों जैसे कंप्यूटर, मोबाइल, इंटरनेट और शैक्षिक सॉफ्टवेयर का अभिनव तरीके से उपयोग करने से है। इसे ई-लर्निंग या टेक्नोलॉजी एन्हांस्ड लर्निंग भी कहा जाता है। इसके अंतर्गत ऑनलाइन कोर्सेस, वर्चुअल क्लासरूम, इंटरैक्टिव मल्टीमीडिया और अन्य डिजिटल उपकरण शामिल हैं, जो विद्यार्थियों को पारंपरिक शिक्षण विधि से परे लचीले, सुलभ और सीखने के व्यक्तिगत अनुभव प्रदान करते हैं। इस आर्टिकल में हम जानेंगे कि किन-किन तरीकों से डिजिटल लर्निंग भारतीय शिक्षा प्रणाली को प्रभावित कर रही है। राष्ट्रीय शिक्षा नीति एक ऐकडेमिक क्रेडिट बैंक (ए बी सी) की भी स्थापना करती है जो अलग अलग मान्यता प्राप्त संस्थानों से प्राप्त क्रेडिट को एकत्रित करेगा और विद्यार्थी उस क्रेडिट का उपयोग करके किसी भी उच्चतर शिक्षा संस्थान से डिग्री प्राप्त कर सकेंगे. वैसे ये व्यवस्था सभी विद्यार्थियों के लिए की गई है ना कि केवल एसईडीजी वर्ग के लिए या महिलाओं के लिए. लेकिन महिलाओं को इसका सर्वाधिक लाभ होगा क्योंकि विवाह, पारिवारिक आदि कारणों से उनकी गतिशीलता (मोबिलिटी) बहुत अधिक रहती है. उपरोक्त के अतिरिक्त उच्चतर शिक्षा में आगमन और निकास (एंट्री और एग्जिट) के अनेक विकल्पों वाला प्रावधान भी महिलाओं के लिए उपयोगी है जिससे उन्हें विभिन्न स्तरों पर सर्टिफिकेट, डिप्लोमा और डिग्री के अनेक विकल्प उपलब्ध हो जाएंगे. अनेक वे व्यक्तिगत और पारिवारिक कारण जो उच्च शिक्षा और शोध के क्षेत्र में महिलाओं की भागेदारी को कम कर देते हैं उनको दूर करने की दिशा में ये बदलाव मील का पत्थर साबित हो सकते हैं.

डिजिटल शिक्षा की आवश्यकता एवं उपयोग

1 डिजिटल शिक्षा के माध्यम से छात्र सक्रिय रहकर व्यक्तिगत रूप से अपने ज्ञान एवं दक्षताओं का स्वयं निर्माण करते हैं तथा वह घर बैठे विदेशों से भी शिक्षा ग्रहण कर उपाधि प्राप्त कर सकते हैं।

2. डिजिटल शिक्षा द्वारा 24 घंटे एवं सप्ताह के सातों दिन विद्यार्थी अपनी सुविधा अनुसार अध्ययन कर सकते हैं।

3. डिजिटल शिक्षा में विद्यार्थी वेबकॉन्फ्रेंसिंग के द्वारा विषयवस्तु एवं प्रकरण पर किसी विषय विशेषज्ञ से अंतःक्रिया करते हुए अधिगम कर सकते हैं।

4. डिजिटल शिक्षा के माध्यम से विद्यार्थी सुदूर होने के बाद भी एक साथ एक समूह में अध्ययन कर सकते हैं। जिससे उनका समाजीकरण भी होता है। विद्यार्थी किसी भी जगह से पढ़ाई कर सकते हैं जैसे हॉस्टल से, महाविद्यालय से, साइबर कैफे से आदि। इससे आर्थिक दृष्टि से अक्षम विद्यार्थी भी उपयोगी विषय वस्तु का अध्ययन कर सकते हैं।

5. डिजिटल शिक्षा के माध्यम से छात्र कोई भी समस्या आने पर शिक्षकों से समाधान प्राप्त कर सकते हैं, साथ ही किसी भी वीडियो को बार-बार देखकर या रिकॉर्ड करके अध्ययन कर सकते हैं। नई शिक्षा नीति में की उपयोगिता को स्वीकार किया गया है। इसने शिक्षा में विद्यार्थियों का एनरोलमेंट बढ़ा दिया है। इससे अधिक संख्या में छात्रों के बीच ऑनलाइन परीक्षाओं के आयोजन को भी बढ़ावा दिया जा सकता है। जिससे समय व खर्च दोनों को बचाया जा सकता है। ऑनलाइन या डिजिटल शिक्षा एक ऐसा मंच है जो जीवनपर्यंत अधिगम के अवसर उपलब्ध करा रहा है। डिजिटल शिक्षा के अंतर्गत ई-शोध सिंधु, ई-जर्नल्स, वर्चुअल लैब्स, राष्ट्रीय शोध नेटवर्क तथा अन्य आईसीटी उपकरण भी उपलब्ध कराए गए हैं।

सम्बन्धित साहित्य का सर्वेक्षण

1 **क्लेतिओनस,जार्ज एवम अन्य (2020) ने एन एनालिसिस ऑफ़ डिजिटल एजुकेशन इन कनाडा 2017-2019**- विषय पर अध्ययन किया और निष्कर्ष में पाया कि कोविड-19 के कारण डिजिटल लर्निंग ने कनाडा के उच्च शिक्षण संस्थानों हेतु सराहनीय कार्य किया है। तथा डिजिटल लर्निंग के प्रयासों में रुचि रखने वाले शोधकर्ताओं, शिक्षकों और प्रशासकों को इसकी आवश्यकता है।
(Veletsianos et al., 2021)

2 **कुमार ललन (2020) ने कोविड 19 के दोर में ऑनलाइन शिक्षा: सम्भावनाये एवं चुनोतिया** पर अध्धयन किया और पाया कि ऑनलाइन पढ़ाई में विभिन्न समस्याएं उत्पन्न हो रही है। वहीं दूसरी ओर 21वीं सदी में ऑनलाइन शिक्षा समाज की आवश्यकता भी बनती जा रही है। ऐसे में नीति निर्धारकों को एक मिश्रित व्यवस्था चलानी चाहिए, जिसमे ऑफलाइन कक्षा के माध्यम से नैतिक, समाजिक व व्यवहारिक ज्ञान को बढ़ावा मिले तथा ऑनलाइन कक्षा के माध्यम से तकनीकी ज्ञान को बढ़ावा मिले।

3 **अग्रवाल, निधि एवम झा बबिता (2021) ने उच्चतर माध्यमिक विद्यालयों में शिक्षा के डिजिटलीकरण से विद्यार्थियों के शेक्षणिक उपलब्धि पर पड़ने वाले प्रभाव का अध्ययन नामक** विषय पर अध्ययन किया और पाया कि निम्न श्रेणी के विद्यार्थियो को अतिरिक्त कक्षाओ में अध्यापन कार्य कराया जाता है जिसके कारण शैक्षणिक उपलब्धि मे भी परिवर्तन हुआ है। (अग्रवालएवं झा, 2021)

4 अगमबेन , जार्जिया (2020) ने तकनिकी बर्बरता के नए युग की शुरुवात हे ऑनलाइन शिक्षा विषय पर अध्ययन किया और पाया किइस महामारी को डिजिटल तकनीकी के प्रसार के लिए बहाने के तौर पर प्रयोग किया जाएगा। तथा ऑनलाइन डिजिटल शिक्षा के विरोध की सुगबुगाहट वैश्विक स्तर पर आरंभ हुई है।

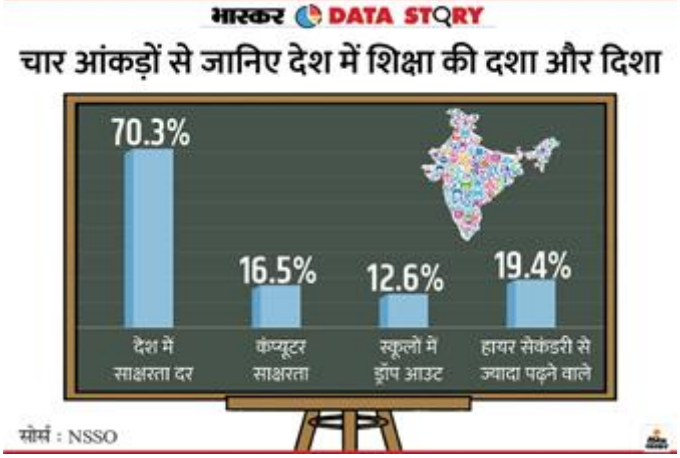
(Agamben, 2020)

महिलाओं में डिजिटल शिक्षा की सम्भावनायें एवम चुनोतियां

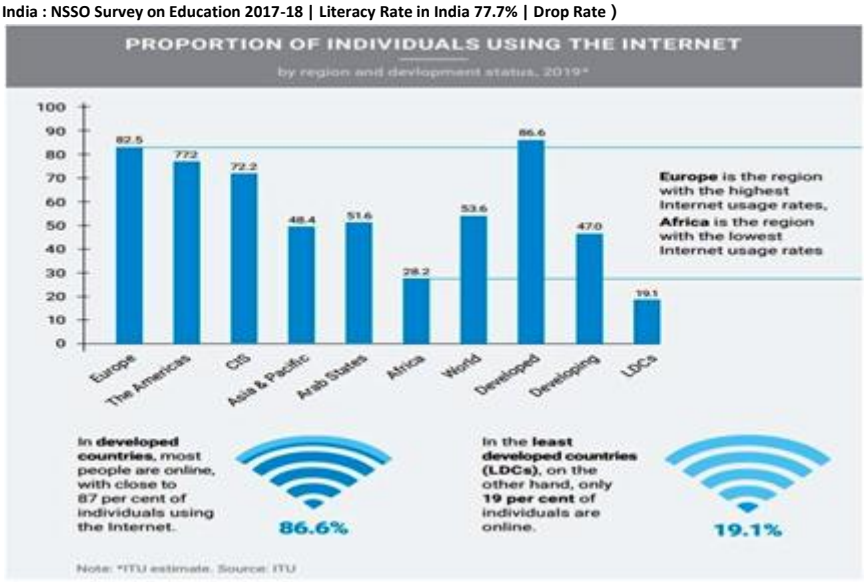
अभी भी डिजिटल महिलाओं शिक्षा के क्षेत्र में उतना कार्य नहीं हो पाया है जितने की आवश्यकता है। महामारी के चलते शिक्षण संस्थानों और छात्रों को इसके अनुरूप ढालना एक बड़ी चुनौती के समान है। इंटरनेट प्रणाली अभी भी कुछ ही महिलाओं तक सीमित है तथा इंटरनेट स्पीड भी एक बड़ी समस्या है। एक कारण यह भी है कि कुछ मध्यमवर्गीय परिवारों में स्मार्टफोन जैसी मूल सुविधा अभी भी उपलब्ध नहीं है। प्रत्येक शिक्षण संस्थान का अपना अलग पाठ्यक्रम है जिसके कारण अलग-अलग पाठ्यक्रम के अनुसार ही शिक्षा दी जाती है। पाठ्यक्रम की असमानता सबसे बड़ी चुनौती है। कई विषयों में व्यावहारिक शिक्षा की जरूरत होती है। तकनीकी की समझ न होना भी एक बड़ी चुनौती है। डिजिटल महिलाओं शिक्षा में संभावनाओं की बात करें तो आधुनिक युग में इसका उपयोग तीव्र गति से बढ़ रहा है। आजकल प्रतियोगिता की तैयारी कराने वाले संस्थान इस पद्धति का बहुतायत उपयोग कर रहे हैं तथा आने वाले समय में भारत में शिक्षा प्रणाली के अपार अवसर हैं। डिजिटल महिलाओं शिक्षा के मार्ग में कई चुनौतियाँ भी हैं जैसे-

- उचित अध्ययन स्थानों का अभाव होना।
- इंटरनेट की अपर्याप्त पहुँच का होना।
- इंटरनेट की गति का धीमा होना।
- शिक्षकों को तकनीकी का उचित ज्ञान न होना।
- सामाजिक सामंजस्य का अभाव होना।

वर्तमान समय में डिजिटल इंफ्रास्ट्रक्चर की कमी भी एक चुनौती है। इंटरनेट सुविधा के माध्यम को खराब तकनीकी कहता है, क्योंकि यह केवल 15.87 % छात्रों को ही ब्रॉडबैंड सुविधा उपलब्ध करा पा रहा था। कोविड-19 की महामारी फैलने से पहले देश के लगभग 40,000 उच्च शिक्षा संस्थानों में से अधिकतर के पास ऑनलाइन पाठ्यक्रम शुरू करने की अनुमति नहीं थी। इसलिए जब केंद्र और राज्य सरकारों ने इन संस्थानों को ऑनलाइन कक्षाओं के माध्यम से अपने छात्रों को पढ़ाई कराने का आमंत्रण दिया तो यह संस्थान इसके लिए तैयार नहीं थे। यह भी एक बड़ी चुनौती के रूप में देखने को मिला तथा कई विषयों में छात्रों को व्यावहारिक शिक्षा की आवश्यकता होती है अतः डिजिटल महिलाओं शिक्षा उस मार्ग में भी कम कारगर है।



(सोर्स - Literacy Rate in India : NSSO Survey on Education 2017-18 | Literacy Rate in India 77.7% | Drop Rate)



(सोर्स - The digital divide is hurting women's education and income | World Economic Forum)

शोध विधि-द्वितीयक तथ्यों के आधार पर शोध पत्र का विश्लेषण किया गया हे महिला शिक्षा डिजिटल शिक्षा से संबंधित समाचार लेखो पत्र पत्रिका इंटरनेट का उपयोग किया गया हे|

महिलाओ में डिजिटल शिक्षा से परिवर्तन

1. ऑनलाइन शिक्षा (Online Education) ऑनलाइन शिक्षा के माध्यम से, महिलाएं अपने शैक्षिक कौशलों को विकसित कर सकती हैं और उच्च शिक्षा तक पहुंच सकती हैं। कई महिलाओं को उनके घर में फोन नहीं दिया जाता है, लेकिन इससे काफी प्रगति हो सकती है। जो महिला स्कूल या कॉलेज नहीं जा सकती उनके लिए ऑनलाइन एजुकेशन उपलब्ध करा कर बड़ा परिवर्तन किया जा सकता है।

2. डिजिटल स्वास्थ्य सेवाएं (Digital Healthcare Services) डिजिटल स्वास्थ्य सेवाएं महिलाओं को आसानी से स्वास्थ्य सेवाओं तक पहुंचने में मदद कर सकती हैं, खासकर रूरल क्षेत्रों में, जहां मुश्किल से कोई हेल्थ केयर सर्विस मिलता है। ऐसे जगहों पर कई मौते डॉक्टर्स के समय पर ना आने या कोई दवाई या सही इलाज नहीं मिल पाने के कारण होती हैं। डिजिटल स्वास्थ्य सेवाओं से महिलाओं को काफी लाभ पहुंच सकता है।

3. सोशल मीडिया (Social Media) सोशल मीडिया प्लेटफ़ॉर्म महिलाओं को अपने विचारों को आवश्यक समूह तक पहुंचाने में मदद कर सकते हैं और उन्हें नेटवर्किंग का लाभ उठाने में सहायक हो सकते हैं। सोशल मीडिया के सहायता से कई महिलाएं अपना बिज़नेस कर काफी आगे बढ़ा रहीं हैं साथ ही इससे उनको दुनिया भर का ज्ञान मिलता है जोकि शायद सोशल मीडिया के बिना मिलना मुश्किल हो जाता।

4. डिजिटल शिक्षा (Digital Literacy) डिजिटल शिक्षा महिलाओं को डिजिटल दुनिया में सक्रिय भागीदार बनाने में मदद कर सकती है और उन्हें डिजिटल उपकरणों का उपयोग करने में सहायक हो सकती है। जो महिलाएं गाव या रूरल एरिया में रहती है उन्हें कई ऐसे उपकरण हैं, जिसका इस्तेमाल नहीं करना आता पर अगर उन्हें ये सिखाया जाए तो उस उपकरण का उपयोग करके वो काफी आगे बढ़ सकती हैं।

5. डिजिटल सुरक्षा (Digital Security) महिलाओं की सुरक्षा के लिए डिजिटल सुरक्षा अत्यंत महत्वपूर्ण है, जिसमें ऑनलाइन गुप्त रहने और अपनी व्यक्तिगत जानकारी की सुरक्षा को ध्यान में रखना शामिल है। असल में महिलाओं को फ़ोन ना देने का सबसे बड़ा कारण डिजिटल सुरक्षा ही हैं, लोगों को डर है कि उनके साथ कुछ गलत ना हो जाए कोई फ्रॉड या कुछ भी गलत एक महिला के इज्ज़त पर बात खड़ा कर सकता है।

6- वैयक्तिकृत शिक्षण डिजिटल शिक्षा प्रणाली के विभिन्न लाभों में से एक महिलाओं को जरूरत के अनुसार उनकी गति से सीखने में मदद करना है। यह छात्रों को अपने प्रदर्शन का स्व-मूल्यांकन करने और उसे सुधारने का मौका देता है। इसके अलावा, डिजिटल प्रारूप शिक्षकों को महिलाओं की सीखने की क्षमताओं के अनुरूप पाठ्यक्रम को अनुकूलित करने में सक्षम बनाता है।

7- **स्किल डेवलपमेंट** प्रारंभिक और माध्यमिक कक्षाओं के दौरान विभिन्न डिजिटल प्रौद्योगिकियों और उपकरणों का एक्सपोजर उनके स्किल डेवलपमेंट में महत्वपूर्ण योगदान दे रहे है। क्योंकि यह महिलाओं को उच्च शिक्षा और आधुनिक करियर अपनाने के लिए तैयार करता है। कोडिंग, डेटा साइंस और इंजीनियरिंग जैसे क्षेत्रों में पाठ्यक्रम पेश करने वाले प्लेटफार्मों ने लोकप्रियता हासिल की है।

विवेचना- इतनी बड़ी महामारी आने के बाद भी देश की महिलाओं में शिक्षा व्यवस्था बाधित नही हुई, यह सब इंटरनेट और ऑनलाइन शिक्षा की ही देन है। इस दुर्गम मार्ग को सुगम बनाने का कार्य डिजिटल शिक्षा ने ही संपन्न किया है। वर्तमान समय में प्रौद्यौगिकी ने इतनी उन्नति कर ली है कि दुनिया के किसी भी कोने में बैठकर इंटरनेट के माध्यम से ऑनलाइन शिक्षा प्राप्त कर सकते हैं। इंटरनेट कनेक्टिविटी और उससे संबंधित सुविधाओं के लिए राज्यों के बुनियादी ढांचे में परिवर्तन करना केंद्र सरकार का दायित्व है। भारत डिजिटल प्लेटफॉर्म के माध्यम से महिलाओं में शिक्षा को देश के सभी कोनों तक पहुंचाने के लिए पूरी तरह से अभी भी तैयार नहीं है। नेशनल सैंपल सर्वे के शिक्षा से जुड़े 75वें चरण के आंकड़े बताते है कि केवल 24%घरों में ही इंटरनेट की सुविधा है, जिसमे 42 %शहरी क्षेत्रों मे है तो ग्रामीण क्षेत्रों के केवल 15% घरों मे ही इंटरनेट की सुविधा उपलब्ध है आईएएमएआई की रिपोर्ट में बताया गया है कि वर्तमान समय में लगभग 50 करोड़ ही इंटरनेट यूजर है। आभासी अधिगम उपकरण (वर्चुअल लर्निंग टूल्स) के लिए विशेष रूप से उन्नत एवं सुरक्षात्मक उपायों के साथ ऑनलाइन प्लेटफॉर्म सुनिश्चित किए जाने चाहिए तथा उपकरणों में नवीनतम सॉफ्टवेयर एवं एंटीवायरस प्रोग्राम समय एवं आवश्यकतानुसार अद्यतन होने चाहिए। डिजिटल उपकरणों व कार्यक्रमों का हैकिंग से रोकथाम हेतु भी विशेष प्रबंध होने चाहिए। समाज के गरीब और वंचित समूहों सहित सभी के लिए ऑनलाइन शिक्षा सस्ती व आसानी से पहुँच में नहीं है। जो महिलाओं ऑनलाइन शिक्षा को ग्रहण करने में असमर्थ हैं उनके लिए निःशुल्क ऑनलाइन शिक्षा की व्यवस्था होनी चाहिए ताकि कोई भी महिला शिक्षा प्राप्त करने से वंचित न रहे अतः हम कह सकते हैं कि डिजिटल शिक्षा जितनी आनंददायक है उतनी ही उसमें चुनौतियां भी हैं, जैसे- मानवीय मूल्यों के अभाव, तकनीकी के नुकसान, हैकिंग जैसी समस्याएं आदि। भारत में इंटरनेट योजना 2011 से चल रही है किंतु फिर भी आखरी छोर तक इंटरनेट की सेवा न पहुंच पाने से यह योजना पूर्णतः सकारात्मक धरातल पर अभी भी धीरे-धीरे ही परिणत हो रही है। डिजिटल शिक्षा का उपयोग यदि सावधानीपूर्वक नहीं किया गया तो यह बालक के सर्वांगीण विकास पर प्रतिकूल प्रभाव भी डाल सकती है।

निष्कर्ष-

उपरोक्त विवेचन से यह स्पष्ट है कि पहले की अपेक्षा वर्तमान समय में महिलाओं में डिजिटल शिक्षा की व्यापक प्रासंगिकता है, फिर भी कुछ चुनौतियों के बावजूद भी महिलाओं में डिजिटल शिक्षा के क्षेत्र में मील के पत्थर के समान कार्य कर रही है। आशा है कि भविष्य में इससे सभी बच्चे लाभान्वित होंगे। महिलाओं में डिजिटल शिक्षा के सकारात्मक व नकारात्मक पहलू अवश्य हैं, लेकिन कोविड-19 के दौरान डिजिटल शिक्षा पद्धति ने छात्रों, शिक्षकों और शिक्षण संस्थानों की काफी सहायता की है। इस पद्धति ने महिलाओं में शिक्षा के आदान-प्रदान को कोविड-19 जैसे कठिन समय में भी बाधित नहीं होने दिया।

सन्दर्भ

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"शिक्षा में प्राद्यौगिकी का महत्व एवं चुनौतियॉ"

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सारांश – स्वामी विवेकानंद ने कहा ..... भारत के विकास के लिए भारत के आध्यात्मिक एवं पश्चिम के विज्ञान का समन्वय आवश्यक है । आज के बदलते दौर में सब कुछ डिजिटल हो रहा है वहीं शिक्षा का क्षेत्र भी अछूता नहीं है तकनीकी आधारित शिक्षा प्रणाली विद्यार्थी और शिक्षक दोनों के लिए एक वरदान की तरह साबित हो रही है इससे विद्यार्थी घर पर रहकर भी शिक्षा प्राप्त कर सकता है। साथ ही शिक्षक भी अपने शिक्षण में निखार लाने में रुचि रखने लगे । कोविड के संकट भरे दौर में भी ऑनलाइन शिक्षा का महत्व ओर अधिक बढ़ रहा है आज की शिक्षा और शिक्षा पद्धति में बच्चों को प्रतियोगी परीक्षाओं के लिए बाहर तथा इंस्टिट्यूट जाने में जो बच्चे जहां जाने में असमर्थ है उन्हें वह घर बैठे ही परीक्षाओं की तैयारी व सभी डिग्री कोर्स की तैयारी ऑनलाइन क्लासेस के द्वारा आसानी से कर रहे हैं एक ओर ऑनलाइन शिक्षा पद्धति से समय की बचत होती है वहीं दूसरी ओर ज्ञान की विविधता भी बढ़ रही है। क्योंकि विदेश में कई अनुभवी शिक्षकों के व्याख्यान को छात्र हमारे भारत में बैठकर आसानी से समझ सकता है शिक्षा के तीन उद्देश्य है व्यक्ति चरित्र निर्माण एवं समाज कल्याण का उत्तरोत्तर विकास है। यह शिक्षा प्रणाली कंप्यूटर व नेटवर्क पर आधारित कई उपकरणों की जिसमें जरूरत होती है जो बहुत महंगे होते हैं। इस शिक्षा के अंतर्गत छात्र अपने किसी प्रश्न का जवाब कम समय में बड़ी आसानी से प्राप्त कर लेते हैं जिससे वह ज्यादा सोच विचार नहीं करते और आखिरकार परिणाम यह होता है कि उनकी रचनात्मक क्षमता में कमी आती है पूरे समय वह मोबाइल पर एक तक देखते रहते हैं जिससे एक और उनकी आंखों पर बुरा असर होता है वहीं दूसरी और उनके बौद्धिक विकास व मानसिक विकास पर भी बुरा असर होता है।

संक्षेप में मैं अपनी बात कहूं तो कक्षा में छात्रों के व्यक्तित्व में सुधार के साथ-साथ सामाजिक भाईचारा स्टेज फीयर ओर संप्रेषण कौशल में भी सुधार होता है क्योंकि प्राथमिक शिक्षा नैतिकता मानवता देश प्रेम और अन्य आधारभूत कौशल सिखाती है। जो बच्चों के मानसिक बौद्धिक और शारीरिक स्वास्थ्य के लिए आवश्यक है केलिफोर्निया स्टेट यूनिवर्सिटी द्वारा किए गए एक अध्ययन के अनुसार परियोजना आधारित शिक्षण प्रशिक्षण की तुलना में बहुत बेहतर परिणाम देती है।

प्रस्तावनाः-

ऋग्वेद में - आ नो भद्रा कृतवो यन्तु विष्वतः अर्थात सुविचार का सभी दिशाओं में स्वागत हैं।

अधिगम शिक्षा तकनीक की महत्वपूर्ण शब्दावली हैं। सामान्य भाषा में अधिगम का अर्थ 'सीखना' होता हैं। मेरे विचार से विषय वस्तु को समझने के लिये यह महत्वपूर्ण है कि विद्यार्थी शिक्षकों के सम्पर्क में रहें, शिक्षण में दृश्य व श्रव्य माध्यमों को पहले से ही उपयोग में लाया जाता हैं, किन्तु वर्तमान परिपेक्ष्य में सूचना प्रद्यौगिकी के उपयोग से इसे और प्रभावषाली बनाया जा सकता हैं। इस प्रोद्यौगिकी से किसी भी विषय के जाने माने विशेषज्ञों से सीधे संवाद किया जा सकता हैं। इस प्रक्रिया का महत्वपूर्ण अंग शिक्षण विधियॉ हैं।

शिक्षण संस्थाओं में ऑनलाईन शिक्षण को प्रभावी बनाने के लिये यथोचित मॉनिटर्निंग एक अच्छा साधन हैं अच्छी पाठ योजनाओं की रिकार्डिंग कर उन्हें सहजा जा सकता हैं। और भविष्य में कभी उनका उपयोग भी किया जा सकता है।

आधुनिक समय में तकनीकी आधारित शिक्षा प्रणाली विद्यार्थी और षिक्षक के लिये एक वरदान की तहत है जिसमें किसी कारणवश शिक्षा ग्रहण नहीं की हो या बीच में ही किसी कारण से पढ़ाई को छोड़ना पडा हो तब भी ऑनलाईन प्रणाली से शिक्षा प्राप्त की जा सकती हैं। यह शिक्षा कम्प्यूटर आधारित नेटवर्क से संबद्ध होती है। इसमें विद्यार्थी वीडियों के माध्यम से घर पर रह कर भी शिक्षा प्राप्त कर सकता हैं। पारंपरिक शिक्षा

की बात करू तो पहले विद्यार्थी अपने गुरू से रूबरू होता था, प्रत्यक्ष रूप से शिक्षा ग्रहण करने के लिये गुरूकुल या कक्षा में ज्ञान प्राप्त करने के लिये शिष्य जाता था लेकिन आज नवीनतम रूप से गुरू से शिष्य सेलफोन, लेपटॉप या इंटरनेट के माध्यम से रूबरू होता है और ज्ञान प्राप्त करता है। इससे यह लाभ होता है कि अध्यापक और छात्र अपने घर से बाहर जाये बिना एक दूसरे से इंटरनेट की सहायता से जुड सकते हैं जो एक दूसरे के लिये वरदान की तरह है।

तकनीकी और उसके उपयोग से कई बदलाव हुये है शिक्षण संबंधित सामग्री, टेक्नोलॉजी के माध्यम से एक दूसरे के पास एक स्थान से दूसरे स्थान पर भेजा जा सकती हैं। इससे एक ओर धन से साथ-साथ समय की बचत तो होती हैंए वही दूसरी ओर विद्यार्थी शिक्षण को देख व समझ सकते है। न समझ आने पर किसी भी समय दोबारा देख कर अपनी समस्याओं का समाधान कर सकता हैं।

ऑनलाइन शिक्षा का महत्व एवं आवश्यकता

कोरोना वायरस के संक्रमण की वजह से पूरी दुनिया लगभग थम सी गई थी जहां स्कूलों कॉलेजों में हुआ करती थी भीड़ वहां लॉकडाउन के कारण शैक्षिक संस्थाएं बंद होने से लाखों की संख्या में छात्र प्रभावित हुए। ऐसे संकट भरे दौर में एकमात्र सहारा था ऑनलाइन शिक्षा। इसके माध्यम से छात्र अपने ज्ञान के स्तर को बड़ा कर अपनी समस्याओं का समाधान निकाल पाते थे व्याख्यान एवं आवश्यक सामग्री ऑनलाइन प्लेटफॉर्म के माध्यम से आज प्राप्त की जाती है ताकि छात्र आसानी से घर पर रहकर पढ़ सकते हैं। आज कई लोग यूनिवर्सिटी और शहरों में जाकर पढ़ नहीं सकते हैं। इस ऑनलाइन शिक्षा ने इस शिक्षा को सरल बना दिया है विद्यार्थी ऐसे विश्वविद्यालयों में ऑनलाइन दाखिला ले सकते हैं तथा अपने मनपसंद विषय का चयन कर पढ़ाई कर सकते हैं। आधुनिक जमाने की शिक्षा का नया रूप है ऑनलाइन शिक्षा आप अपने ऑनलाइन क्लास की रिकॉर्डिंग कर सकते हैं यदि आप कुछ भूल भी जाते हैं तो दोबारा उसे प्ले करके बड़ी आसानी से समझ सकते हैं और साथ ही साथ क्लास में अपने अनसुलझे डाउट को अपने अध्यापकों से पूछ भी सकते हैंतथा अन्य छात्रों से भी आपस में संवाद भी कर सकते हैं वह अपने पूर्व ज्ञान में वृद्धि करते हैं।

ऑनलाइन शिक्षा के लाभः–

इस शिक्षा के माध्यम से शिक्षक अधिक रोचक बनाया जा सकता है यह घर में तथा घर से बाहर यात्रा करते वक्त कहीं पर भी किसी भी वक्त अपने विषय से संबंधित जानकारी प्राप्त कर सकते हैं छात्र स्वयं इसे सीखना है कमा इसके साथ स्वयं सीखने समझने की ललक बढ़ेगी इसमें सूचनाओं का संग्रहण अधिक तीव्र गति से होता है छात्रों को दुनिया के सर्वश्रेष्ठ शिक्षकों एवं सर्वश्रेष्ठ विद्यालय विद्यालयों से शिक्षा ग्रहण करने में मददगार साबित होगी यह नई शिक्षा प्रणाली ।

ऑनलाइन शिक्षा से संबंधित चुनौतियांः–

शिक्षा का उद्देश्य तथ्यों को हटाना नहीं बल्कि दिमाग को प्रशिक्षित करना होता है अल्बर्ट आइंस्टीनके शब्दों में "जो व्यक्ति कभी गलती नहीं करता इसका अर्थ है कि उसमें कभी भी कुछ नया करने की कोशिश नहीं की। यानी जब हम कुछ नया करते हैं तो गलतियां होना स्वाभाविक है।"

विद्यार्थियों की शिक्षक उपलब्धि का आकलन करना कठिन कार्य है हमारे सामने इसकी चुनौतियां सकारात्मक एवं नकारात्मक दोनों ही रूपों में आती है जिसे नकारा नहीं जा सकता। हमारे देश का एक बड़ा भाग ग्रामीण परिवेश में निवास करता है जहां ऑनलाइन शिक्षा के लिए अनिवार्य डिवाइस की व्यवस्था करना आसान कार्य नहीं है क्योंकि ग्रामीणों की सीमित आय होती है तथा बिजली की पर्याप्त व्यवस्था न होने के कारण नेटवर्क की समस्या आती है जो निम्नलिखित बिंदुओं के द्वारा हम इन चुनौतियों को समझ सकती है जो इस प्रकार है-

- पारंपरिक शिक्षा न सिर्फ विद्यार्थियों का ज्ञान अर्जुन एवं जानकारी प्रदान करती है बल्कि पारस्परिक पद्धति में प्राप्त शिक्षा विद्यार्थियों के व्यक्तित्व में बहुमुखी विकास भी करती है जो कि कंप्यूटर आधारित शिक्षण से संभव नहीं है।
- ऑनलाइन शिक्षा द्वारा छात्रों को जब सूचनाओं विषय वस्तु और पाठ्य सामग्री की आवश्यकता होती है तो उसे विषय का विशेषज्ञ शिक्षक होने के साथ-साथ कंप्यूटर में निपूर्ण व्यक्ति की आवश्यकता होती ह।
- यह शिक्षा वर्ग के छात्रों के लिए ज्यादा फायदेमंद हो सकती है लेकिन निम्न वर्ग के छात्र के लिए नहीं क्योंकि यह महंगी होने के साथ-साथ चुनौती पूर्ण है।
- मनोवैज्ञानिकों के अनुसार यह शिक्षा तनावपूर्ण है बच्चों के शारीरिक व मानसिक स्वास्थ्य पर विपरीत प्रभाव पड़ रहा है। डिजिटल शिक्षा के अंतर्गत छात्र किसी भी प्रश्न का जवाब कम समय में इंटरनेट से प्राप्त कर लेते हैं जिससे बच्चों की रचनात्मक क्षमता में कमी आती है।

निष्कर्ष

हमें हमारे जीवन में हर एक नए तरीकों को अपनाने के लिए तत्पर रहना चाहिए। हर चुनौती एक अवसर देती है कोरोना का समय हमें बहुत कुछ सीख गया जिसमें तनाव से दूर रहने के लिए यही एक सहारा मात्र प्रणाली थी जिसमें मानव व्यस्त रहकर अपने कार्य को अंजाम दे पा रहा था यह एक नवीन शिक्षा का माध्यम है ऑनलाइन शिक्षा के संबंध में कई प्रकार की योजनाएं व रणनीतियां बनाई गई ताकि देश का कोई भी बच्चा तकनीकी शिक्षा के पीछे ना रह जाए किसी भी देश के विकास में प्राथमिक शिक्षा महत्वपूर्ण योगदान देती है क्योंकि बच्चे में नैतिकता, देशप्रेम, मानवता और अन्य आधारभूत चीजें सिखाती है जो बच्चों के बौद्धिक शारीरिक व मानसिक स्वास्थ्य के लिए जरूरी है आधुनिक तकनीकी आज अध्यापकों माता-पिता और बच्चों के बीच ज्ञानार्जन के एक विश्वसनीय सेतु का काम कर रही है। आज एक ऐसे मानव नजरीयें की जरूरत है जहां डिजिटल तकनीक एक उपकरण के रूप में कार्य करें।

संदर्भ सूची

1. डॉ. रविंद्र कान्हेरे - शिक्षा का अंतर्राष्ट्रीयकरण पेज नंबर 157 नंदी घोष मध्य प्रदेश हिंदी ग्रंथ अकादमी भोपाल प्रथम संस्करण 2023
2. डॉ. ज्योति दिवाकर ऑनलाइन शिक्षा चुनौती और संभावनाएं पेज नंबर 176,178, नंदी घोष मध्य प्रदेश हिंदी अकादमी भोपाल प्रथम संस्करण 2023
3. ऋतुपर्ण दवे-जनसत्ता (समाचार पत्र) 24 अगस्त 2023
4- ज्योति सिडाना -जनसत्ता (समाचार पत्र) 10 जनवरी 2024

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TECHNOLOGICAL PROGRESS IN EDUCATIONAL SYSTEM: DIGITAL EDUCATION AND NEW PROVISION

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Abstract - Digital transformation of the country is underway and digital evolution of the economy and society is possible only through digital education. The concept of digital learning is not new and has existed in various forms for many years now, but when the COVID-19 pandemic suspended face-to-face teaching its significance increased manifold. Most educational institutions are adopting digital education as a solution while traditional classroom setup takes a back seat for some time due to the currently prevailing pandemic. Digital education is being seen as an alternative to the traditional education process of chalk and talk.

The emergence of the internet and ever-evolving technology has made learning interactive, engaging, motivating, and handy. Education is not anymore limited to textbooks and classrooms; it has become an amalgamation of technology, innovative learning, and digital content. The internet has become far more affordable and accessible and this shall lead to a greater confluence of digital and traditional teaching methods. The government is actively involved in taking essential steps to come forward with policies that will boost the digital education market in India. The efforts are being made to uplift the standard of digital infrastructure pan India to help facilitate the utilization of innovative educational tools. In near future, digital education like all other sectors will witness noticeable amendments in the way educational institutions function. A plethora of possibilities emerging out of digital education shall empower the education system of the country.

Advantages of the Digital Education System:

Individualized Learning Experience: A major drawback of the traditional education system is that many students experience a lack of interest when they are not able to catch up with the rest of the class. The contemporary digital format allows teachers to customize the study material based on an individual's learning speed and ability. The impact of educational programs is uplifting with the digitalization of the education system.

Students become Smarter: When exposed to new learning tools and technology students develop effective self-directed learning skills. The digital education system enables students to analyze what they need to know to be able to search and utilize online resources. It plays a significant role in magnifying their efficiency, learning ability, and productivity.

Unlimited Information: The world of the internet is vast and loaded with information, most of which is freely accessible. The emergence of digital education has made it possible for students to explore and use this treasure of knowledge. Earlier, students would rely on limited sources of information, but now thanks to the growing popularity of the digital education system, unavailability of the required information is no longer a barrier in seeking knowledge.

Smart Classrooms: The chalk and talk method is now a thing of the past, and teachers are making use of more tech-savvy methods to help students understand that learning can be innovative and fun. The modern-day classrooms are equipped with a TV or a projector which makes it is easy to shift from a regular classroom session to an interactive digital session. This can make students pay more attention as they are extensively acquainted with the digital world.

Digitally Updated: In a world that is ever-evolving in terms of technology, practices and information can easily become outdated, as there is always something new transpiring. Equipping students with updated information and other subject-related topics is no longer a matter of choice, but a mandatory process. Students spend most of their time on their phones and laptops, so they must be sound technology-wise.

High Engagement Learning: The traditional education system provides limited scope for engagement as its forces at work include limited factors like textbooks, an instructor, and hand-written notes, whereas the digitized education system offers a wide range of choices to learn from. The unlimited availability of resources makes every session extremely innovative and engaging. The interactive and game-based learning sessions gain higher engagement from students.

Ease of Sharing: The traditional education system would heavily rely on students maintaining thick notebooks of hand-written notes containing information provided by teachers in the classroom or acquired through extensive research in the library, but the modern digital education system changes everything. Now preserving and sharing information is just a click away which saves students a lot of time and physical labor.

Accountability in Students: The digital education system incorporates real-time evaluation and system-generated performance reports which increases the transparency of assessment. It enables students to analyze their performance and come up with required solutions on their own. The digital education system brings students out of their shells and makes them independent thinkers who know what to study, when to study and how to study. They no longer remain dependent on their teachers and parents to spoon-feed them with information.

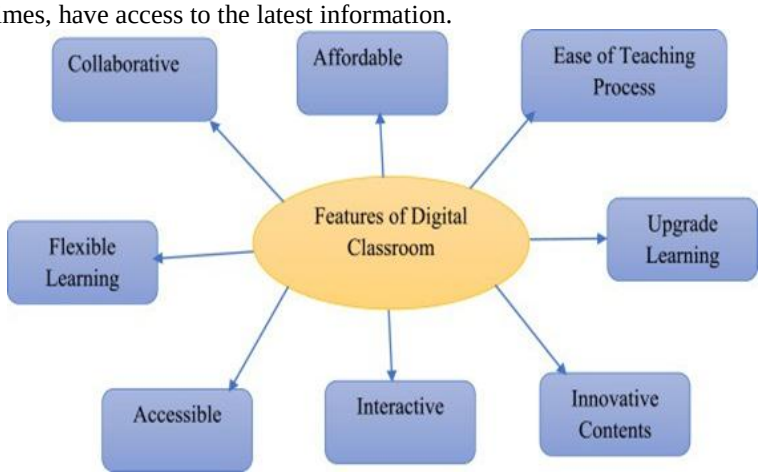
Benefits of a digitally-enabled classroom

1. **Global Information Sharing**

Digital platforms connect various information sources around the world to create an integrated information hub. Unlike traditional chalk and board teaching, where access to information is limited, ebooks and digital libraries can be viewed from any place in the world. Children can utilize any information from around the globe to supplement their learning.

Most of the time, traditional classrooms don't have access to the latest information. This also causes discrepancies in the syllabus across countries. But smart classrooms overcome this problem by providing equal access to information for all students globally.

Multiple people can access ebooks at once, which means there is no limit to the resources students can access online. And as knowledge evolves continuously, updating and altering digital content is also easier. This ensures that students, at all times, have access to the latest information.



2. **Multiple Teaching Tools**

Face-to-face lectures and blackboard teaching makes learning monotonous for students. On the other hand, moving beyond traditional teaching by adapting digital tools introduces fun and creativity in education.

Smart classrooms have several modes of teaching apart from the usual lectures. Interactive sessions, animated videos, and 3D models are some methods that change the way students learn. More than written notes, illustrative examples simplify a concept and help students understand it better. With technology-based classrooms, you can provide multiple resources for the same topic and create a learning strategy combining different teaching tools.

3. Better Accessibility

One of the main advantages of a tech-based classroom is accessibility. Traditional classrooms require students to meet at a place and learn from an instructor. Most of the time, these lessons aren't stored for future reference. Students who can't commute or attend classes might miss out on the lessons, even if they are absent for a day.

Tech-powered classrooms bridge this gap by being accessible anytime and anywhere. Students can attend classes using a connectible device right from the comfort of their homes. Even if they miss a lecture, they can always view it through recorded sessions. This also helps them revise better without searching for content from other sources.

4. Self-Paced Learning

Every student has a different pace and style of learning. And with in-person teaching, there's only so much flexibility that you can achieve. Most traditional classrooms are focused on a group of students rather than a single student. Even though teachers are available after class, pupils who need to learn at a slower pace might feel left behind.

Virtual classrooms provide the right balance between structure and flexibility. As students can access content anytime, they can learn at their own pace. They can also rewatch the content or ask for more resources in case the available information isn't sufficient. This ensures that every student understands the concept while keeping up with the entire class.

5. Increased Accountability

Whether it is conducting class tests or providing feedback, a smart classroom makes it easier. As every student has their own profile in a virtual system, teachers can keep track of their performance. If you have uploaded educational content in the digital class system, you can check each student's progress by analyzing their watch time.

You can also conduct online tests and supervise the students using webcams and microphones. The system also offers you the facility to upload each student's result and feedback in a single place and every student will be able to view them in their respective profiles.

The information can be accessed at any time, so students can be held accountable for their performance. Sharing the data with their parents and other teachers is also easy, as all the information is available in the same place.

6. Ease Of Communication

Smart classrooms facilitate communication between students and teachers. Whether they have doubts or questions, students can send the same to the teacher through multiple communication methods.

For example, if a teacher is unavailable when a student wishes to communicate, they can leave a message explaining their question. The teacher can see it whenever they are free and send back their answers or schedule a virtual meeting.

Additionally, teachers can also use the platform to communicate individually or with the entire class. Notifications like upcoming exams, changes in schedule, and additional resources can be shared on the virtual platform.

7. Cost And Resource Saving

Cost-saving is also one of the crucial advantages. Every year, educational institutes use thousands of sheets of paper for classroom teaching. Traditional classrooms rely a lot on paper, from printing out the syllabus to writing notes. This is not only costly but also harmful to the environment.

Technology-enabled classrooms almost entirely eliminate the need for paper. As all the resources are available online, students don't need to maintain separate books for learning. The same resources can be utilized every year, as they don't get dull or damaged after use. This saves costs and teaches the students to be environment conscious.

CONCLUSION

Technology is overtaking various aspects of our lives, and education is no different. Many schools are already using a hybrid of traditional and digital learning tools to support efficient learning. A smart classroom in India helps kids learn better and creates an educational ecosystem by connecting institutes all across the globe. With an increasing number of institutes adopting this technology, technology-enabled classrooms are undoubtedly the future of education.

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"A REVIEW ON USE OF MODERN TECHNOLOGY IN TEACHING AND LEARNING PROCESS AND ARTIFICIAL INTELLIGENCE"

(with reference to government college, rau, indore in relation to the department of higher education madhya pradesh)

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Abstract - Modern technology has greatly revolutionized the field of education by providing innovative tools and resources to enhance teaching and learning experiences. One significant use of technology in education is the integration of multimedia elements such as videos, animations, and interactive simulations to make learning more engaging and effective. Additionally, online platforms and learning management systems enable educators to create virtual classrooms, facilitate discussions, and provide instant feedback to students. Furthermore, educational apps and software offer personalized learning experiences tailored to individual student needs, promoting greater understanding and retention of information. Overall, modern technology has the potential to increase accessibility, collaboration, and efficiency in education, preparing students for success in a digital world.

Keywords: Integration, virtual, retention, accessibility, collaboration etc.

INTRODUCTION:

Modern technology has greatly transformed the way education is delivered and received, giving rise to the use of various instruments in the teaching and learning process. One of the most prominent instruments used in modern technology is computers, which have revolutionized the way information is accessed, processed, and presented. With the help of computers, students can access a wide range of educational resources, collaborate with their peers, and even participate in virtual classrooms. Another important instrument is the internet, which provides access to endless sources of information, making research and learning more efficient and effective. Additionally, mobile devices such as smartphones and tablets have also become popular instruments in education, offering convenience and flexibility for students to learn anytime and anywhere. Multimedia tools such as projectors, interactive whiteboards, and virtual reality equipment are also commonly used in modern classrooms to enhance student engagement and understanding. These instruments have proven to be valuable assets in promoting a dynamic and interactive learning experience for students, making modern technology an integral part of the teaching and learning process.

HISTORY OF USE OF MODERN TECHNOLOGY:

As we all are now living in a digital age and the learners of today's generation have different needs and requirements. The learning must not be limited to the classroom only; it must be confined outside the classroom also. Digital technology has the potential for making a substantial contribution to enriching education for all areas of Curriculum that strives for Excellence. If the technology is effectively used, it will result in enhancing the teaching and learning by digital technology (Edinburgh, 2016). In our day-to-day life, the advancement of technology is increasing all over the world and in everyone's life. Many jobs were not having any requirement of technology but now are in dire need of technology (Costley, 2014). Many individuals are using technology in their daily routine of life. The individual's day starts with their alarm on the phone and ends up with what's app messages. Many Youngsters feel happy and satisfied to make use of technology and due to this, we can integrate technology in education for making the teaching-learning process systemic and efficient so that the learners can learn in a good and happy mood.

For the successful completion of various activities and tasks in different sectors like the use of technology in the educational sector have been applied for improving and making the teaching-learning process more appropriate, effective and efficient for the students as well as for the teachers. Students in today's schools are lucky enough to have access to many technology equipment's and Internet technologies (Baytak et. al., 2011). While incorporating technology in teaching makes lessons fun and joyful for the students, the students can learn at their own pace that is at anywhere and at any time they can easily access the desired content with the help of technology and can learn easily. "How teachers learned subject matter is not necessarily the way their student will need to be taught in the 21st century" (Niess, 2005, p. 509). Technological use in teaching and learning can bring improvement in the performance of students and can bring positive learning outcomes. While making use of technological equipment like Interactive Whiteboard, the interest among learners can be increased towards learning. The students can learn easily and then the classroom will become a happier place of learning for each student whether the child is slow learner, backward, or a disabled. Teachers can teach the

students by applying various technological skills which also helps them for improving their teaching in a more advanced way i.e. according to the need and interest of the child the teacher designs his or her teaching pedagogy.

The history of the use of modern technology in teaching and learning can be traced back to the emergence of educational radio broadcasts in the early 20th century. These broadcasts allowed educators to reach a wider audience and deliver lessons beyond the confines of traditional classrooms. The introduction of educational television programs in the 1950s further expanded access to quality educational content. The advent of computers in the 1970s marked a significant milestone in the integration of technology in education, with the development of educational software and interactive multimedia programs.

Moreover, video conferencing tools like Zoom and Microsoft Teams have revolutionized remote learning by enabling virtual classroom sessions and interactive online lectures. This shift to online education has been further propelled by the COVID-19 pandemic, which necessitated the rapid adoption of e-learning solutions to ensure continuity in education.

Artificial intelligence (AI) is increasingly being utilized in education to personalize learning experiences, provide instant feedback to students, and streamline administrative tasks for educators. Adaptive learning platforms can assess individual student needs and tailor instruction accordingly, fostering a more personalized and effective learning environment.

Furthermore, educational apps and digital resources offer interactive and engaging content to enrich traditional teaching methods. Virtual Reality (VR) and Augmented Reality (AR) technologies are being leveraged to create immersive and hands-on learning experiences, particularly in subjects like science, history, and geography.

In essence, the current scenario of the use of modern technology in teaching and learning is characterized by its vast potential to enhance accessibility, engagement, and effectiveness in education. As technology continues to advance, educators and institutions must adapt and innovate to leverage these tools effectively and maximize their impact on student learning outcomes.

TEACHING LEARNING PROCESS IN GOVT. COLLEGE, RAU:

About The College:

Government College, Rau is a leading institute in higher education, located in Indore, Madhya Pradesh, established in 2011. Students can pursue their education from the institute in Degree courses including UG and PG programs. These programs are offered in Full-Time mode. The institute has a good reputation for courses such as B.Com, B.A, B.Sc., M.A., M.Sc. and M.Com. Government College, Rau provides the opportunity to gain expertise through its trained and experienced faculty. The courses provided are in the stream of Accounting & Commerce, Humanities & Social Sciences, Science and offers excellent infrastructure facilities, such as Labs, Library, Sports Complex, Wi-Fi Campus, etc.

Government College Rau, which was established in the year 2011, is one of the best colleges of Indore (Madhya Pradesh), the city which has been selected for smart city and declared the cleanest city of India fourth time successively. The Indian Institute of Management (IIM) is within a radius of one kilometer which gives us a sense of pride. The college is easily approachable because it is hardly one kilometer away from the A.B. Road and city bus stop is also in-front of the college-gate. It is spread across ten acres, in an area having boasts of greenery all around the campus. The college has value driven organizational culture that motivates students, staff and our faculty members to think of education that gives opportunity to unfold and express oneself to be a performer and achievers through learning and self-realization. The institute has family culture where all the stake holders accept each-others' strength and weakness, pain and pleasures and thereby support and groom its family members to be mentally stable and physically agile to live, learn and lead.

Teaching-Learning Infrastructure In College:

The college has a fully equipped computer lab with internal LAN (Local Area Network), some classrooms are well-equipped with LCD projectors and screens. Broadband leased line internet connection is highly useful for the function of all the above devices very speedily. Every department of the institute has a separate PC with a printer. It has three smart boards, projectors, projector screens, sound system, printers, and scanners. It has installed a separate Wi-Fi unit for the faculty members inside the campus through the access of which they are able to update themselves according to the need of the hour. All the departments effectively mix up theoretical classroom teaching and practical exposure through the YouTube videos. The library of the institute is regularly updated with online resources. The recorded video lectures of the teachers are uploaded on the YouTube channel. Lectures given by the teachers in virtual classes are available on the website of the Department of Higher Education. Social media is skillfully used by the college through its WhatsApp groups for all the classes. All the staff is well familiar with the ICT tools and PPT bank of the teachers is available on the website of institute. All the faculty members use power point presentation to explain the syllabus . The institute

encourages teachers to attend the training programs, workshops, seminars and conferences related to the use of ICT tools and innovations in teaching-learning.

FUTURE ASPECTS OF MODERN TECHNOLOGY:

In the future, the use of modern technology in teaching and learning will continue to play a crucial role in education. With the rapid advancements in technology, the traditional ways of teaching and learning are being transformed. Virtual and augmented reality, artificial intelligence, and personalized learning platforms are just a few examples of how technology is revolutionizing education. These innovations offer students more engaging and interactive learning experiences, making it easier for them to grasp complex concepts. Moreover, technology allows for personalized learning, catering to individual student needs and pace. This not only increases student engagement but also promotes a more inclusive and diverse learning environment. Furthermore, technology also offers teachers access to a vast array of educational resources and tools, allowing them to create dynamic and effective lesson plans. As we move towards a more digital world, the use of modern technology in teaching and learning will continue to evolve and shape the future of education. It has the potential to bridge the gap between traditional classroom learning and real-world applications, preparing students for success in the ever-changing job market. However, it is crucial to maintain a balance between technology and traditional methods to ensure that the focus remains on student learning and not just on the use of gadgets. With proper integration and training, technology can enhance teaching and learning experiences, making education more accessible and effective for all students.

CONCLUSION:

Modern technology has revolutionized the way teaching and learning are conducted in today's classrooms. With the integration of various technological tools and resources, teachers are able to create a dynamic and interactive learning environment for their students. The use of multimedia presentations, online learning platforms, educational apps, and virtual reality simulations has made learning more engaging, personalized, and accessible. Students are now able to access a vast amount of information and resources at their fingertips, enhancing their understanding and critical thinking skills. Moreover, technology has also made it possible for students to collaborate and communicate with their peers and teachers from different parts of the world, promoting global citizenship and cultural awareness. Overall, the use of modern technology in teaching and learning has transformed traditional classroom methods, providing endless opportunities for both teachers and students to enhance their knowledge and skills. It has also equipped them with the necessary technological literacy that is essential in today's ever-evolving digital world.

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"THE ADVANCEMENT IN MODERN EDUCATION SYSTEM WITH THE HELP OF ICT TOOLS"

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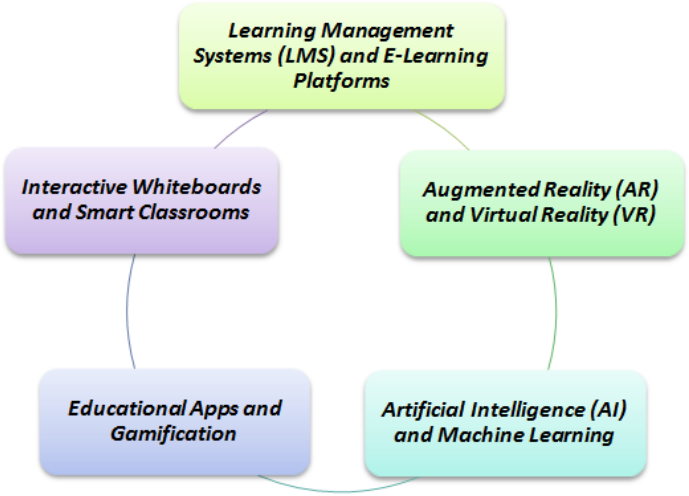
Abstract - In this article, we will discuss about the enhancement and evolution in modern education system after the growth of Information and Communication Technology (ICT) Tools. The use of ICT in education has greatly changed the current educational landscape. The qualities of modern technology present an opportunity to create fresh approaches to education, revolutionising the status quo. The current digital change of education is making traditional instruction from teacher to student less relevant. ICT in education includes presentations, audios, videos, images, and/or a combination of these utilised for learning. Thereby, ICT in education refers to the use of information and communication to enhance education delivery in every aspect. Education professionals now rely heavily on digital technologies to store, process, and share all of their lesson materials across numerous electronic devices. These tools also enable them to generate new content in a much more visually appealing manner. As stated by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) that the introduction of ICT into education has given students unrestricted access to resources and information as well as this technology is seen as a wonderful assistance for educators and raises the standard of student learning.
Keywords: ICT, Digital Technologies, Education, Student Learning.

➢ Introduction

Education is the bedrock of any society, significantly influencing a nation's development. India's educational system has evolved from the ancient "Gurukul System" through various historical periods to the present day. Modern education now extends beyond classroom boundaries, largely due to technological advancements. The world beyond the classroom has become more accessible via recent technological progresses. ICT, which stands for Information and Communication Technologies, includes a broad spectrum of tools used for communication, information creation, sharing, storage, and management. These tools include computers, the Internet, email, mobile devices, projectors, and interactive boards, among others. ICT is a system that utilizes contemporary technology to collect and transmit various information or data over long distances. It has been assumed that one of the new technological system's potentials is the integration of ICT into education. In addition to serving as the foundation of the information age, ICT is a key enabler and instrument for bringing about educational changes that transform our students into competent knowledge workers. It is commonly asserted that pupils acquire formal information and have relatively little aptitude for learning new ideas. As a result, we are faced with the possibility of applying ICT and considering how to enhance society's educational systems in light of the alarming situation. According to constructivist theory, both teachers and students acquire the information and skills required in this digital age. As a result, most of nations in the world are concentrating on methods for integrating ICT into learning and teaching in order to raise the standard of education by highlighting competencies like critical thinking, decision-making, and handling dynamic situations, as well as teamwork and effective communication. This research aims to analyze the role that ICT plays in improving the quality of education.

➢ Major ICT Tools used in Modern Education



❖ **Learning Management Systems (LMS) and E-Learning Platforms**

LMS and E-learning platforms like Moodle, Blackboard, and Google Classroom are critical for online learning, enabling the delivery and management of educational content and tracking student progress.

❖ **Interactive Whiteboards and Smart Classrooms**

Interactive whiteboards and smart classrooms, equipped with digital projectors and screens, have replaced traditional blackboards, enhancing student engagement and learning through dynamic presentations and real-time collaboration.

❖ **Augmented Reality (AR) and Virtual Reality (VR)**

Augmented reality (AR) and Virtual reality (VR) technologies offer immersive learning experiences by simulating real-world environments, particularly beneficial in fields such as medicine, engineering, and history.

❖ **Educational Apps and Gamification**

Educational applications and gamified learning modules make learning more engaging and enjoyable, offering personalized learning paths and instant feedback.

❖ **Artificial Intelligence (AI) and Machine Learning**

Artificial Intelligence (AI) and machine learning facilitate adaptive learning systems that cater to individual student needs, optimizing learning outcomes by customizing content based on student performance.

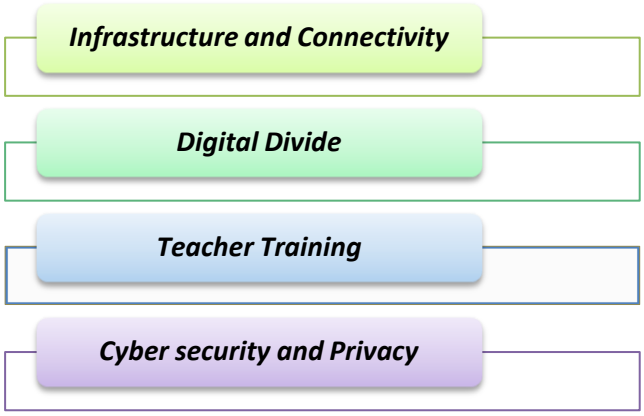
➢ **Effects on Inclusivity and Accessibility**

ICT tools have significantly improved access to education, especially for underserved and remote communities. Online courses and Massive Open Online Courses (MOOCs) on platforms like Coursera and edX eliminate geographical and socioeconomic barriers, providing high-quality education to anyone with internet access.

➢ **Improving Teaching Methods**

The integration of ICT in education has led to innovative pedagogical approaches such as flipped classrooms, blended learning, and project-based learning. These methods create a more engaging and student-centered learning environment. Teachers can use data analytics to monitor student progress and tailor their teaching strategies accordingly.

➢ **Difficulties and Solutions**



1. **Infrastructure and Connectivity**

Some regions face challenges with reliable internet connectivity and technological infrastructure. Public-private partnerships and infrastructure investments are essential to address these issues.

2. **Digital Divide**

Socioeconomic disparities lead to unequal access to ICT technologies. Policies aimed at providing affordable devices and internet access can help bridge this gap.

3. **Teacher Training**

Effective use of ICT requires adequate training for educators. Professional development programs and ongoing support are crucial for equipping teachers with the necessary skills.

4. **Cyber security and Privacy**

With the increased use of digital tools, data security and privacy have become critical concerns. Implementing robust cyber security measures and educating users about safe practices are essential.

➢ **Future Prospects**

The future of ICT in education appears auspicious due to ongoing technological breakthroughs. The educational landscape will be further enhanced by emerging trends such as AI tutors, blockchain for accreditation, and

advanced analytics. Sustained research and investment in ICT will play a crucial role in establishing a comprehensive, fair, and efficient education system.

➢ **Conclusion**

The future of ICT in education looks promising with ongoing technological advancements. Emerging trends such as AI tutors, blockchain for accreditation, and advanced analytics are expected to further enhance the educational landscape. Continued research and investment in ICT will be vital in creating a comprehensive, equitable, and efficient education system.

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TECHNOLOGY: A MODERN ERA OF EDUCATION

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Abstract: The rapid innovation in technology has revolutionized teaching and learning. Nowadays, the demand for distance education, online learning, and e-learning has increased rapidly. As a result, numerous researchers have conducted studies to determine the benefits and drawbacks of online learning. The use of technology enhances traditional teaching methods, providing students with better learning opportunities anytime and anywhere. Students can now easily connect virtually with e-sources and other individuals through learning management systems. The major objective of NEP-2020 is to make the learning process more interesting and impactful. It also emphasizes engaging and encouraging learners. Technology has made the process of teaching and learning more enjoyable.
Keywords: Modern technology, teaching, learning, e-sources.

Introduction

Technology plays very important role in our life the modern era or 21st era is often regarded as era of technology. Technology makes our work much easier and less time consuming. This has changed the way of teach8ing and learning the demand for distant education and concept of online learning has increased due to arrival World Wide Web (www) several researches have been conducted to find the benefits and drawbacks of online learning in higher education also. The use technologies in teaching and learning can help to improve traditional teaching methods

The term technology in education refers as technology in service of agriculture to use of equipments and machines for educational purpose, it includes the use of Audio–Visual Equipments, Projectors, Radio, Television, Teaching machine, Computers etc.

Educational technology is broadly classified into two heads:

1. Technology of education
2. Technology in education

Technology of Education

It refers to the application of behavioural sciences like psychology of educational theories and practical teaching learning problems, motivation and instruction etc. Basically the concepts of financing, planning and administration are also covered under technology of education .it is the inherent in education itself.

Following techniques are included in technology of education

- Analysis of instructional problems
- Selection of instruments for evaluation
- Selection of strategies
- Teaching behaviour
- Programmed learning
- System analysis

Technology in Education

Technology in education implies the use of implements tools and machines in education. Its approach is identified as hardware approach .it is related to teaching aids it is very useful in mass education programmes the main examples of technology in education is TV, Radio, Slide Projector etc.

Review of literature

R. Raja, P.C. Nagasubhramani (2018) have defined that technology is one of the greatest gift of god after the gift of life .It is the mother of civilization, arts and sciences. Without any doubt technology is important in all aspects of life Education has been transferred but technology advances, with the start of new technology we need to learn how to adopt that technology in easiest way.

Dr. Behera Hadibandhu (2020) in this article research reflects about world rapidly moving to digital ways. He also discussed about the various challenges and positive attributes and implementation of advance portals of information technologies.

George Gisa, Johonson Mary johnsy, Dr. Reddy Chandra Ravi(2021) analysed that Indian education is one of the world's largest and oldest educational system. The use ICT had a massive impact on the teaching and

learning process. Furthermore as compare to other countries India uses ICT at a very low rate. In the pursuit of more effective learning methodologies and developments of 21st –century skills, innovative approaches have emerged **(Villalba et al,2018)** These skill encompass critical thinking communication, collaboration, creativity and information ,media and technology literacy .

Tech students and faculty, with a 25 years trajectory of research readership, are at the forefront of digital de-sign, building stimulation, engineering and construction integration **(Gamble et al,2015).**This collaborative Effort has resulted in the successful acquisition of compenties and skills, posiontiong students as technological leaders in the modern industry **(Lopez et al,2021).**The digital gap between higher education and students highlighted during COVID -19 pandemic, underscores the necessity for university teachers to develop EdTech skills **(Ortega-Ruiperez,2022)**.technological innovation including ICT ,are viewed as holding promises for revolutionizing access in societal instructions like schools and healthcare services **(Bagga –Gupta et al ,2016)**The ubiquity of information and communication technologies (ICT's)has significantly changed the procedure and courses in higher education institution (Khajuria et al.2023).

Impact and factors affecting technology in education

The main role of technology in the field of education is four –fold .It is included as a part of the curriculum. Because of technology education has gone from passive and reactive to interactive and aggressive. Education or training is used to help workers do things differently than they did before.

Jung talks about the enormous challenges teachers are facing in our society due to the rapid expansion of knowledge hence these new technologies increases the teachers training needs.

The main barriers are:

- Lack of access
- Lack of time
- Lack of resources
- Lack of support
- Lack of expertise

Impact of ICT's education

In educational context, ICT has the potential to increase the access of education and improve its relevance and quality.

- **Active and smart learning** :ICT tools helps for the calculation and analysis of information obtained for examination and also students 's performance report are all being computerized and made easily available for enquiry.
- **Creative learning**: ICT promotes the creative learning to manipulate the existing information and to create one's own knowledge to produce a given instructional purpose.
- **Evaluation Learning:** Use of ICT for learning is student –centred and provides useful feedback through various useful feedbacks through various interactive features.it promotes constructive learning rather than rote learning.

Positive impact

1. **Globalization:** Students can anytime from anywhere meet their counterparts through video conferencing or e sources. Some sites also help the students to learn foreign languages online by pairing a group of students with a teacher from another country.
2. **No geographical limitations**: Distance learning and online education have become very important part of the education system now a day .with the introduction of online degree programmes there is hardly any need of being present physically in the classrooms.
3. **Enhanced Teaching and learning**: Technological developments like digital cameras, projectors, mind training, software, computers, power point presentations, 3D visualization tools helps students grasp a concept easily.

Negative Impact

1. **Increasing incidents of cheating**: It is easier for students to write formulas and note on graphing calculators, with least chances of being caught. And high tech watches, mini cameras and similar equipment's have become great sources to cheat in exams.
2. **Lack of focus:** Students are seen playing with their cell phone, often between the lectures being ever-connected to the online world has resulted in the lack of focus and concentration in academics and to some extent, in sports and extra curriculum activities.

CONCLUSION

Technology has a positive impact on education and the same time may also possess negatives effect. Nowadays it is expected from teachers to provide the environment that will enable students who have grownup using multitude of digital platforms ton access information easily .innovative ways of reading and interpreting literary texts identified and explored in this paper trigger the students' motivation ,initiate discussion and raise the students awareness of the current social, political and global issues. Therefore , it can be concluded that ,by adequate implementation of social media in teaching literature that includes the student's consuming and producing content in an online environment .Technology when used correctly can be powerful tool for improving learning and increasing engagement .In terms of technology in education we will see significant advancements in the coming years .

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A STUDY ON THE IMPACT OF MODERN TECHNOLOGY ADVANCEMENT IN EDUCATION SYSTEM

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Abstract - The use of modern technology in teaching and learning has revolutionized the education system, making it more efficient, interactive, and accessible. With the integration of technology in classrooms, students are able to learn at their own pace, using various multimedia tools and resources. This allows for a personalized learning experience, catering to individual needs and learning styles. Technology is a gift of god. Technology place and important role in every square of life. The important of technology in higher education, educational systems and modern technology. The uses of technology has made the process of teaching and learning all the process. While the process of educational technology in higher education office multiple benefits its implementation also present challenges. The literature has considered multiple tools for improving learning process. This technology include computers, video, television, sensors, interface boxes, the internet, telecommunication, satellite, connections and all the software and the materials which help the teachers to use them to teach there pupils.
Keywords: Higher Education, Teaching Learning process, Information Technology.

INTRODUCTION

Technology has originally come from the Greek word techno logia. The word techno logia became technology and it comes into existence. The word was used in the seventeenth century for the first time. Many people think that the word technology only means that the mobile, internet computer, laptop etc. They further believe that technology is nearby to them, the growth among them like new languages, the building of new websites and the new creativity in the field of computers that is only the technology. But if we talk about the proper meaning of technology, it means the scientific knowledge that can be used for solving many practical problems especially in the field of commerce and industry. Various types of materials and methods are being used for solving the practical problems that denote that the technology is not restricted to computer and internet only. It is much wider than that. The satellite and switchboards in our houses are also a part of technology. Technology Changes because the needs and requirements of human beings are unlimited.

The use of modern technology in teaching and learning has revolutionized the education system, making it more efficient, interactive, and accessible. With the integration of technology in classrooms, students are able to learn at their own pace, using various multimedia tools and resources. This allows for a personalized learning experience, catering to individual needs and learning styles. Moreover, technology has made learning more engaging and interactive through the use of interactive whiteboards, educational apps, virtual and augmented reality tools. In addition, online platforms and virtual classrooms have provided flexibility for students to access educational materials and resources from anywhere, at any time. This has also opened up opportunities for distance learning and remote education, breaking down geographical barriers. Furthermore, technology has enhanced collaboration and communication among students and teachers by providing various platforms for online discussions, group projects, and feedback. Overall, the use of modern technology in teaching and learning has transformed the traditional methods of education, creating a more dynamic and inclusive environment for students to learn and thrive.

RELATED STUDIES

The history of modern technology in life sciences can be traced back to the late 19th century when advancements in microscopy and microbiology led to the discovery of microorganisms and their role in disease. This laid the foundation for the development of vaccines, antibiotics, and other life-saving medications. In the early 20th century, the invention of X-rays revolutionized medical imaging and diagnosis. The 1950s saw the development of DNA sequencing techniques, leading to breakthroughs in genetics and the unraveling of the human genome. The 1970s marked the beginning of biotechnology, with the creation of genetically modified organisms for medical and agricultural purposes. The 21st century has seen rapid progress in fields such as stem cell research, nanotechnology, and artificial intelligence, enabling scientists to study and manipulate cells and molecules at a microscopic level. Today, modern technology plays an integral role in almost every aspect of life sciences, from drug discovery and development to disease diagnosis and treatment. It continues to drive innovation and push the boundaries of what is possible in the field of life sciences, shaping our understanding of biology and improving human health and well-being.

The history of modern technology in life sciences has been a fascinating journey of innovation and discoveries. It all began in the 19th century with the invention of the microscope, which allowed scientists to observe and study cells and microorganisms. This led to the development of new fields such as microbiology and genetics. In the 20th century, advancements in technology such as X-rays, MRI scanners, and computer software revolutionized the way we diagnose and treat diseases. The discovery of DNA structure in 1953 paved the way for genetic engineering, gene therapy, and cloning. The 21st century has witnessed a rapid growth in technology, with the emergence of techniques like CRISPR-Cas9 for gene editing and artificial intelligence for drug discovery. These advancements have not only improved our understanding of life sciences but also transformed healthcare, agriculture, and environmental science. Modern technology has played a crucial role in shaping the field of life sciences, making groundbreaking discoveries and opening up endless possibilities for future advancements. With continuous advancements being made, the future of modern technology in life sciences looks promising, with the potential to revolutionize our understanding of life itself.

Modern technology has revolutionized the way teaching and learning are conducted in today's classrooms. With the integration of various technological tools and resources, teachers are able to create a dynamic and interactive learning environment for their students. The use of multimedia presentations, online learning platforms, educational apps, and virtual reality simulations has made learning more engaging, personalized, and accessible. Students are now able to access a vast amount of information and resources at their fingertips, enhancing their understanding and critical thinking skills. Moreover, technology has also made it possible for students to collaborate and communicate with their peers and teachers from different parts of the world, promoting global citizenship and cultural awareness. Overall, the use of modern technology in teaching and learning has transformed traditional classroom methods, providing endless opportunities for both teachers and students to enhance their knowledge and skills. It has also equipped them with the necessary technological literacy that is essential in today's ever-evolving digital world.

LITERATURE REVIEW

Modern technology has greatly advanced the field of life sciences in recent years. With the development of innovative tools such as genome sequencing, gene editing, and artificial intelligence, scientists are now able to make groundbreaking discoveries and advancements in areas such as healthcare, agriculture, and environmental sustainability. These technologies have allowed for a deeper understanding of biological processes and have paved the way for more targeted and effective treatments for diseases. In agriculture, modern technology has led to the development of genetically modified crops that are more resistant to pests and diseases, increasing crop yields and addressing food scarcity. Furthermore, the use of technology in life sciences has aided in environmental conservation efforts through the monitoring and preservation of endangered species and ecosystems. While there are ethical concerns surrounding some aspects of modern technology in life sciences, there is no doubt that it has greatly enhanced our understanding of the natural world and has the potential to solve many pressing global issues.

Modern technology has revolutionized the field of life sciences, bringing about significant advancements and breakthroughs in various areas such as medicine, agriculture, and biotechnology. With the use of advanced tools and techniques such as gene editing, big data analysis, and artificial intelligence, scientists are able to study and understand complex biological processes at a molecular level. This has led to the development of innovative treatments for diseases, genetically modified crops for improved yield and nutrition, and improved diagnostic tools for early detection of illnesses. Additionally, modern technology has also facilitated the sharing and collaboration of research among scientists globally, leading to faster progress and discoveries in life sciences. However, with these advancements also come ethical considerations surrounding the use of technology in manipulating life forms. Nevertheless, it is evident that modern technology has greatly enhanced our understanding and capabilities in the field of life sciences, paving the way for a healthier and more sustainable future.

CONCLUSION

The future of modern technology in life sciences is full of exciting possibilities. With the advancements in fields such as artificial intelligence, robotics, and biotechnology, the potential for improving human health and enhancing our understanding of the world around us is endless. For instance, AI-powered algorithms can analyze vast amounts of genomic data, leading to more accurate diagnoses and personalized treatments for diseases. In addition, robotic technologies can assist in surgeries and drug discovery processes, making them faster and more precise. Moreover, biotechnology advancements such as gene editing and synthetic biology hold promise for developing new therapies and cures for various diseases. These technological advancements not only have the potential to revolutionize healthcare but also to contribute to sustainable solutions for food production and environmental conservation. However, with these developments come ethical considerations that must be carefully addressed to ensure responsible and beneficial use of technology in life sciences. Overall, the

future of modern technology in life sciences is bright, and it will continue to shape our world in ways we could have never imagined.

The future of modern technology in life sciences is a promising one, with endless possibilities and advancements waiting to be explored. With the rapid development and integration of technology into various aspects of our lives, the field of life sciences is evolving at an unprecedented rate. From the use of artificial intelligence in drug discovery and development to the development of virtual reality for medical training, modern technology is revolutionizing the way we understand and approach healthcare. Additionally, the use of cutting-edge technologies such as gene editing and nanotechnology has opened up new avenues for treating diseases and improving overall human health. As we continue to push the boundaries of what is possible, the future of modern technology in life sciences holds great potential for improving the quality of life and advancing medical research for generations to come. However, it is important to ensure that these advancements are ethically and responsibly implemented to avoid any potential negative consequences.

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TRANSFORMING EDUCATION: LEVERAGING MODERN TECHNOLOGY FOR ENHANCED TEACHING AND LEARNING

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Abstract: In the current digital era, integrating modern technology into education has become imperative for enhancing teaching and learning experiences. This paper explores the transformative potential of leveraging digital tools and resources to optimize educational practices. Reviewing current literature and studies, we examine how technology facilitates personalized learning, fosters collaboration, and promotes student engagement. Key areas of focus include the impact of technology on curriculum design, instructional delivery, and assessment strategies. Furthermore, the paper discusses issues and factors related to integrating technology in the classroom, include digital equity and the need for teacher professional development. Through this exploration, we aim to provide insights into practical strategies for harnessing the power of modern technology to drive educational innovation and improve learning outcomes in diverse educational settings.
Keywords: Modern technology, Teaching, Learning, Curriculum, Exploration.

Introduction

The integration of modern technology into education is reshaping traditional teaching and learning methods. This transformation is driven by advancements in digital tools, the proliferation of the internet, and a growing understanding of the potential for personalized learning. This paper explores the impact of modern technology on education, focusing on key areas such as digital learning environments, adaptive learning systems, and the role of technology in fostering collaboration and engagement.

Digital Learning Systems

Digital learning systems (DLSs) are platforms that utilize technology to create immersive educational experiences [1]. These environments include Learning Management Systems (LMS) like Moodle and Canvas, which facilitate the delivery of course materials, assessments, and communication between educators and students [2].

1. ***Accessibility and Flexibility****:* DLSs provide greater access to educational resources, enabling learners to access materials anytime and anywhere. This flexibility supports diverse learning schedules and paces, which is particularly beneficial for non-traditional students.
2. ***Interactive Learning****:* Tools such as multimedia presentations, simulations, and virtual labs enhance interactivity and engagement. Studies have shown that interactive content can improve retention and understanding of complex subjects [3].

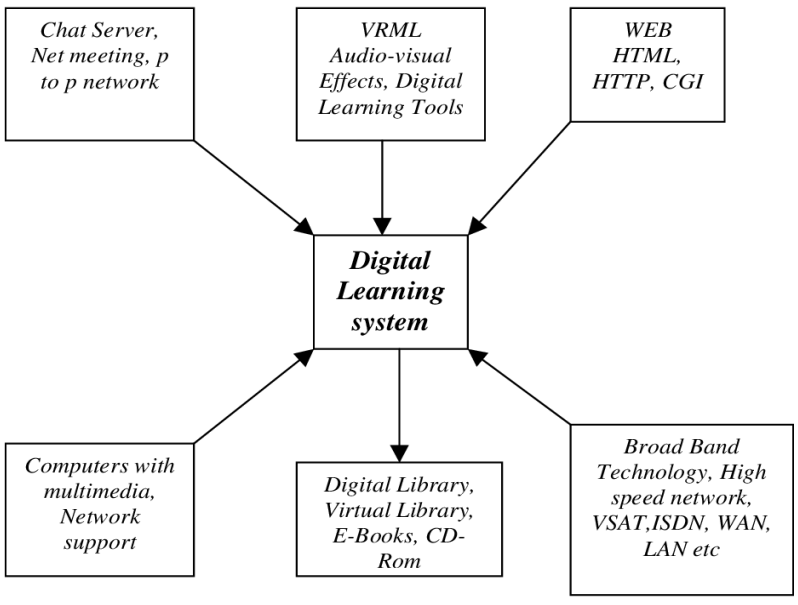

Figure 1: Digital Learning System

Adaptive Learning Systems

Adaptive learning systems use algorithms and data analytics to customize learning experiences based on individual student needs [4].

1. ***Personalization****:* These systems adapt the difficulty and type of content delivered to match the learner's progress and understanding. For instance, platforms like K newton and Dream Box tailor lessons to student performance, promoting a more personalized learning experience [5].
2. ***Data-Driven Insights****:* Educators can use data from adaptive learning systems to identify learning gaps and intervene promptly. This real-time feedback loop helps in addressing individual student needs more effectively than traditional methods [6].

Collaboration and Engagement

Modern technology fosters collaboration and engagement through various tools and platforms [7].

1. ***Collaborative Tools****:* Applications like Google Classroom, Microsoft Teams, and Slack enable real-time collaboration among students and between students and teachers. These tools support group projects, discussions, and peer reviews, enhancing collaborative learning experiences [8].
2. ***Gamification****:* Incorporating game elements into learning (gamification) has been shown to increase motivation and engagement [9]. Platforms such as Kahoot! and Class craft use gamification to make learning more interactive and enjoyable, which can lead to improved student outcomes [10].

Challenges and Considerations

Despite the benefits, there are challenges associated with the integration of technology in education.

1. ***Digital Divide****:* Access to technology is uneven, with disparities between different socio-economic groups. This digital divide can exacerbate existing educational inequalities [11].
2. ***Training and Support****:* Effective use of technology in education requires adequate training for educators. Without proper training and ongoing support, the potential benefits of technological integration may not be fully realized [12, 13].
3. ***Privacy and Security****:* The use of digital tools raises concerns about data privacy and security. Ensuring that student information is protected is paramount in the adoption of any educational technology [14].

CONCLUSION

Modern technology has the potential to significantly enhance teaching and learning by providing personalized, flexible, and engaging educational experiences. However, addressing the challenges of access, training, and security is crucial for the successful integration of these technologies. As educational institutions continue to embrace digital tools, ongoing research and adaptation will be essential in maximizing the benefits of technology in education.

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"IMPORTANCE OF DIGITAL EDUCATION & NEW PROVISIONS"

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Introduction: Digital technologies have emerged as an essential tool to achieve this goal. The introduction of new technology-assisted learning tools such as mobile devices, simulations, dynamic visualizations, and virtual laboratories has altered education in schools and institutions. The Internet of Things has proven to be one of the most cost-effective methods of educating young minds. Large numbers of teachers and students use social media as an essential element of the overall e-learning experience. It is a critical venue for exchanging information about crucial topics these days. Aside from the ability to communicate information anywhere, at any time, social media sites are also a fantastic source of networking possibilities to establish social activities and possibly new jobs. Traditional classroom instructions fall short of providing an immediate learning environment, faster evaluations, and more engagement.
Keywords: Digital technologies, Digital classroom, Digital Education Students Teaching.

The Importance of Digital Education:

In the workplace of the future, success will hinge on possessing the right digital education. Whether acquired in school, university, or on the job, the ongoing digital transformation is elevating the importance of IT skills daily. Additionally, digital media are opening new avenues for learning. I am confident that our company can navigate the challenges of digitalization and capitalize on its opportunities, but it requires a comprehensive approach. Digital transformation is already underway, and it's not just start-up employees who need digital skills. Increasingly, industrial workers, administrative staff, and bank managers must also be digitally adept. Consequently, our educational system, including learning and teaching methods, must adapt to this digital era across all educational levels – from primary school to vocational training and universities, even continuing education.

Digital education will empower individuals to actively engage in social life autonomously in the future, while also ensuring companies remain competitive. Industry 4.0 necessitates Education 4.0. As such, the digital transformation demands a significant shift in both how and what we learn. Digital skills have become as fundamental as reading, writing, and arithmetic. A prerequisite for digitizing the educational system is establishing a comprehensive and efficient IT infrastructure, beginning with broadband connections in educational institutions. Advanced data assessment tools enable personalized learning tailored to students' needs. Intelligent software can track progress, identifying mastered material and areas requiring further instruction, thereby optimizing courses for individual student potential.

For digital education to materialize, teacher training must also modernize. Educators need to be well-trained in using digital media to effectively convey information to pupils, trainees, and college students. Moreover, the government should reconsider the prohibition against federal involvement in state education matters, fostering excellence initiatives in digital education tailored to the needs of companies. Practical efforts are paramount.

New Paths to Digital Learning : We must not only alter what we learn but also revolutionize how we learn. Whether through digital platforms, virtual or augmented reality, online libraries, or webinars, digital media enable a plethora of new and innovative teaching and learning methods in schools, vocational institutions, universities, and corporate training programs. Digital learning transcends the mere digitization of traditional instructional materials. Unrestricted by time and place, digital instruction offers greater flexibility, individualization, and mobility compared to traditional learning methods.

In the digital age, course materials are collaboratively created, shared, and developed in the cloud. Digital instruction encourages students to assume greater personal responsibility from an early age, fostering enhanced communication and teamwork skills.

Education with Digitalization:

As a company, it's imperative that we ensure our occupational vocational and advanced training initiatives keep pace with digital transformation. At Merck, we already prioritize digital training for our apprentices, offering them regular opportunities to enhance their digital skills. Additionally, we've established a digital development program in collaboration with Stanford University for junior managers. Moreover, all employees have access to our learning app, enabling them to stay updated on the latest advancements in digitalization.

Despite the myriad changes accompanying digital transformation, the fundamental goal of education remains unchanged: to enable individuals to develop personally and participate responsibly in social, political, and economic spheres. Thus, it's essential that our education initiatives remain at the forefront of technological advancements.

CONCLUSION

Digital technology in the classroom encompasses various software and gadgets designed to assist students with specific accessibility needs. The most effective approach to reducing the number of repetitive, time-consuming tasks teachers undertake is to utilize technology in the classroom. Educational technology applications may save a lot of time and energy by automating or partially automating day-to-day operations like attendance tracking and performance monitoring. Students are taught how to use technology responsibly and strategically, which can help them make decisions and develop self-discipline. Technology in education can help students to prepare for lifelong learning. These technologies provide students with a virtual world and the freedom to access digital knowledge according to their learning styles.

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ENGLISH LANGUAGE TEACHER'S PERCEPTION AND ATTITUDE TOWARDS BLENDED LEARNING APPROACH

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Abstract - This paper presents a study of teachers' perceptions and attitudes towards blended learning courses in English. Currently, the issue with blended learning is that most teachers do not have a clear understanding of the objectives of e-learning within blended learning courses, and they often rely on traditional blackboard systems. Moreover, teachers are encouraged to take responsibility for their own learning processes. This study also elucidates the English language teaching and learning processes. The use of technology in education has become necessary and inevitable; it has positive effects on the teaching and learning processes. Consequently, numerous efforts have been focused on encouraging teachers and students to adopt blended teaching approaches. It is one of the important applications of using information and communication technology in the educational process, as it combines both face-to-face and online learning.
Keywords: English Language Teaching, Blended Teaching, Teaching and learning process.

Introduction:

Blended learning, which combines traditional face-to-face instruction with online learning, has become an increasingly popular approach in education. This pedagogical method leverages Information and Communication Technology (ICT) tools to enhance the learning experience, providing a more flexible and interactive environment for students. The integration of ICT in the classroom has revolutionized educational practices, making learning more accessible, engaging, and tailored to individual needs.

Evolution of Blended Learning:

Blended learning has evolved significantly over the past few decades. Initially, it involved the simple supplementation of classroom teaching with online resources. However, with advancements in technology and educational theory, blended learning now encompasses a variety of models and approaches, ranging from the flipped classroom to fully integrated digital learning environments. This evolution has been driven by the increasing availability and sophistication of ICT tools, which facilitate a more seamless integration of online and offline learning experiences.

ICT Tools in Blended Learning:

1. Learning Management Systems (LMS): LMS platforms like Moodle, Blackboard, and Canvas are central to blended learning environments. They provide a structured space for course materials, assignments, discussions, and assessments, enabling teachers to organize content and track student progress efficiently.
2. Digital Collaboration Tools: Tools such as Google Classroom, Microsoft Teams, and Slack enable real-time collaboration and communication among students and teachers. These platforms support group work, peer reviews, and virtual meetings, fostering a collaborative learning culture.
3. Interactive Content: ICT tools like Kahoot!, Quizlet, and Nearpod offer interactive and gamified learning experiences. These platforms make learning more engaging and help reinforce concepts through quizzes, flashcards, and interactive lessons.
4. Video Conferencing: Applications like Zoom, Skype, and Microsoft Teams have become essential, especially during the COVID-19 pandemic. They allow for synchronous online classes, bringing the classroom experience into the digital realm and enabling live interaction between teachers and students.
5. Virtual and Augmented Reality: VR and AR tools such as Google Expeditions and Oculus provide immersive learning experiences. These technologies allow students to explore virtual environments and interact with digital objects, making abstract concepts more tangible and understandable.
6. Educational Apps and Software: Countless apps and software are designed for various subjects and skills. Platforms like Duolingo for language learning, Khan Academy for mathematics and sciences, and coding platforms like Code.org offer specialized content tailored to individual learning needs.
7. **Benefits of Blended Learning:**

1. Personalized Learning: Blended learning allows for greater differentiation and personalization. ICT

tools can adapt to the learning pace and style of each student, providing customized resources and feedback. This helps cater to diverse learning needs and enhances student engagement and motivation.

2. Flexibility and Accessibility: Blended learning offers flexibility in terms of time and location. Students can access course materials and complete assignments at their own pace, which is particularly beneficial for those with varying schedules or who need to balance education with other responsibilities.
3. Enhanced Engagement: The use of multimedia and interactive tools makes learning more engaging. Videos, simulations, and gamified elements can capture students' interest and make learning more enjoyable. This increased engagement can lead to better retention and understanding of the material.
4. Collaboration and Communication: ICT tools facilitate better communication and collaboration among students and between students and teachers. Online discussion forums, group projects, and real-time feedback help build a supportive learning community and enhance the overall learning experience.
5. Improved Assessment and Feedback: Digital tools allow for more varied and immediate assessment methods. Teachers can use quizzes, polls, and assignments to continuously assess student understanding. Immediate feedback helps students identify areas for improvement and encourages a growth mindset.

Challenges of Blended Learning:

1. Digital Divide: Access to technology and the internet is not uniform, leading to a digital divide that can disadvantage certain students. Colleges need to ensure that all students have access to the necessary devices and reliable internet connections to fully participate in blended learning.
2. Teacher Training and Support: Effective implementation of blended learning requires teachers to be proficient with ICT tools and digital pedagogies. Ongoing professional development and technical support are essential to help teachers integrate technology into their teaching practices effectively.
3. Student Motivation and Self-Discipline: Blended learning requires a high level of self-motivation and self-discipline from students. Without the structure of traditional classroom settings, some students may struggle to stay focused and manage their time effectively.
4. Quality of Online Content: The quality of online resources can vary significantly. Ensuring that digital content is accurate, relevant, and aligned with curriculum standards is crucial. Teachers need to critically evaluate and curate online materials to maintain high educational standards.
5. Privacy and Security Concerns: The use of online platforms raises concerns about data privacy and security. Colleges must implement robust policies and practices to protect student information and ensure that digital tools comply with privacy regulations.

Best Practices for Implementing Blended Learning:

1. Start with Clear Objectives: Define clear learning objectives and outcomes for the blended learning program. This will guide the selection of appropriate ICT tools and instructional strategies.
2. Professional Development: Provide ongoing training and support for teachers to develop their digital competencies. Encourage collaboration and sharing of best practices among educators.
3. Student Support: Offer guidance and resources to help students adapt to blended learning. This can include training sessions on using digital tools, time management workshops, and access to technical support.
4. Curriculum Integration: Ensure that digital content and activities are seamlessly integrated into the curriculum. Avoid using technology for its own sake; instead, focus on how it can enhance learning and achieve educational goals.
5. Continuous Evaluation: Regularly assess the effectiveness of the blended learning program. Collect feedback from students and teachers, analyze learning outcomes, and make adjustments as needed to improve the program.
6. Foster a Learning Community: Create opportunities for collaboration and interaction among students. Use discussion forums, group projects, and peer reviews to build a supportive learning community.

Future Trends in Blended Learning:

1. Artificial Intelligence: AI has the potential to revolutionize blended learning by providing personalized learning experiences, automating administrative tasks, and offering real-time analytics and insights. Adaptive learning platforms that use AI to tailor content and assessments to individual student needs are likely to become more prevalent.
2. Gamification: The use of game design elements in education can increase student engagement and

motivation. Gamification in blended learning can include leaderboards, badges, and progress tracking, making learning more interactive and enjoyable.

3. Mobile Learning: With the increasing use of smartphones and tablets, mobile learning is becoming more important. Blended learning programs will need to ensure that content is accessible and optimized for mobile devices, allowing students to learn anytime, anywhere.
4. Microlearning: Breaking down content into small, manageable chunks can improve retention and make learning more flexible. Microlearning modules can be integrated into blended learning programs to provide focused and easily digestible content.

5. Virtual and Augmented Reality: The use of VR and AR in education is expected to grow, offering immersive and experiential learning opportunities. These technologies can provide virtual field trips, interactive simulations, and hands-on learning experiences that are not possible in traditional classrooms.
6. Social Learning: Leveraging social media and online communities can enhance collaboration and peer learning. Integrating social learning elements into blended learning can help students connect, share knowledge, and support each other's learning.

CONCLUSION:

Blended learning, supported by ICT tools, represents a significant shift in educational practices, offering numerous benefits while also posing certain challenges. By combining the best of traditional and online learning, blended learning can provide a more personalized, flexible, and engaging educational experience. As technology continues to evolve, the potential for ICT tools to enhance blended learning will only grow, offering new opportunities to improve teaching and learning outcomes. Colleges and educators must embrace these changes, investing in the necessary resources and support to ensure the successful implementation of blended learning programs. Through thoughtful integration and continuous improvement, blended learning can help prepare students for the demands of the 21st century and beyond.

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IMPORTANT OF MODERN TECHNOLOGY IN EDUCATION

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Abstract - Technology is a gift of the creator. After the creation of life it is perhaps the greatest of God's gifts. It is the mother of civilizations, of arts and sciences. Technology has certainly changed the way we live. It has impacted different facets of life and redefined living. Undoubtedly, technology plays an important role in every sphere of life. Several manual tasks can be automated, thanks to technology. Also, more complex and critical processes can be carried out with easy and greater efficiency with the help of modern technology. Thanks to the application of technology, living has changed and it has changed for the better. Technology has revolutionized the field of education. The importance of technology in an institution cannot be ignored. In fact, with the onset of computers in education, it has become easier for teachers to impart knowledge and for students to acquire it. The use of technology has made the process of teaching and learning enjoyable.
Keywords: Education, modern technology, shodhganga, Encyclopedia

1 INTRODUCTION

Nowadays in institutes, universities and colleges. Students can make use of technology in different ways: Internet connection and round the clock connectivity. The internet has grown in importance by many sectors over the course of the century. Its importance in the education of the world can now never be undermined. Despite the chances of fraud and drawbacks, the use of the internet is like a dedication for students. Today, the internet is something that is present in almost everything we use. From the tube to gaming consoles, and our phones, the internet is exactly everywhere. The use of the internet allows students to find amazing convenience, they can find various kinds of research, tutorials and other kinds of assisting material which could be used to academically improve and increase their learning. Using projectors and audio visuals aids always have a strong appeal compared to words. Using projectors and visuals to aid in learning is another form of great technological use. Top institutions around the world, now rely on the use of amazing PowerPoint presentations and projections in order to keep the learning interactive and interesting. Technological use such as projectors within the schools and colleges can take the interaction and interest levels right up and also improve motivation. Students like to see appealing visuals and something that entices them to think rather than just reading words. The learning part also becomes most efficient when It comes to technology. Digital footprint in the education sector

If we talk about digital and education, then the penetration of digital media within the education sector has now grown. This penetration has resulted in round the clock connectivity with students and different forums that are available for different kinds of assignments or help. As the power of digital increases, there are and there will be more applications that will assist students in development and learning. Online degrees with the use of technology Online degrees now have become a very common phenomenon. People wish to take up online courses for their learning and certifications. Top institutions offer amazing online programs with the use of various applications and the internet. This is a concept that will continue to rise as it gets more support and awareness. The online degree scenario around the world is more famous among students who work and look for flexible studying programs.

2 OBJECTIVES OF RESEARCH

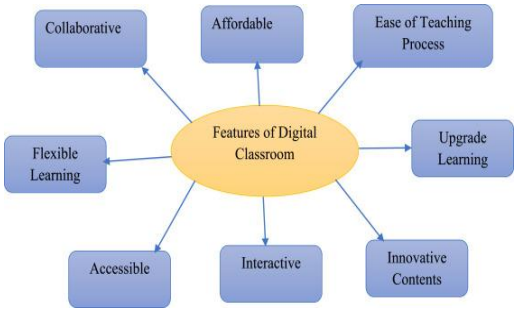
1 Study of technology in education institutions.
2 Importance of technology in different classrooms.
3 Scope of technology in education sector.
4 uses of modern technology in education institutions.

3 MODERN TECHNOLOGY EQUIPMENTS

Digital classroom
Audio visual aids
Artificial intelligence
Robotic technology
Online courses

4 NEED OF TECHNOLOGY

1. Translation and language learning in the education sector.
2. The program offers advice for clarity, modification, and other qualities to improve writing.
3. There are also artificial intelligence-powered toys that can help introduce children to intelligence concepts and improve early learning.
4. The pandemic showed how valuable in-school learning is, and school offers other benefits for students, like globalization.
5. AI programs can drill students in any subject and coach them on fields that require extra study.
6. Above all, Artificial tools seem likely to enhance learning outcomes and free mentors to focus on areas where they can add more value and advantage.
7. Teachers can follow a unique combination of teaching methodologies with different learning styles, accommodating visual learners, auditory learners, and those who benefit from a combination of both.
8. Even the most boring, difficult and complex subjects become interesting. Av aids definition emphasizes its simplifying nature.
9. Students feel more comfortable engaging and communicating in their classroom, building community values besides learning.
10. The boost in information retaining power among students from audio-visual aids definition has a long-lasting impact on students. It improves their ability to comprehend information and remember it for longer durations.
11. Teachers come up with innovative applications of audio-visual aids definition in a classroom. It is implemented through multimedia presentations, educational videos, interactive whiteboards, and visual aids like charts and diagrams, digital tools, online resources, and immersive technologies such as VR and AR to enhance engagement and understanding, podcasts, audio recordings, and collaborative platforms provide supplementary learning experiences. Guest speakers or webinars are also extra real-world insights for students to see. Once institutions realize the real benefits of audio-visual aids, there is no going back! Teach mint offers such diverse learning solutions.
12. Audio Visual Aids is the instructional method of education that uses audio and visual as a mode of learning. The literal meaning of audio is hearing and visual means that is seen by the eyes.
13. Audio Visual aids are devices that are used in the classroom to make learning engaging and easy. These can also help teachers to communicate messages or information in places where regular teaching fails. Audio Visual aids motivate them towards the subjects they don't find interesting.
14. It is a known fact that individuals tend to forget things. Creative methods like images of characters, objects, and voiceovers, attract the attention of students. It also helps them to retain what they learn.
15. Audio Visual aids give a complete learning atmosphere for students. It lets them experience practical experience from the comfort of the classroom. It makes learning more realistic and livelier for students.
16. These aids offer the students a positive understanding of the topic. The conceptual learning experience stimulates self-activity in students. These aids are highly successful for students with special needs like hearing and visual disabilities.
17. Several Audio Visual aids are helping students with their education. Some of the examples are graphical or pictorial representation, flow charts, diagrams, etc. For teaching, overhead projectors are used by teachers to feature short motion pictures. For audio aid, a tape recorder or radio allows students to expand their creative side. It helps in auditory learning. In the below diagram showing digital classroom features which are helpful in the learning process.



CONCLUSION

We found the educational positive effects of technology on the learning process in this paper. We discovered many study findings that technology has a favorable effect on education but may also have negative consequences. Teachers and students should see this positively and work to reduce the hurdles that secure many students and college from reaching success. Thus, it is time for all the countries to implement a more

technologically advanced education system in the future. Additionally, our findings indicate that studying and mastering through technology is more helpful to the educational system than other courses, as it enables students to increase their knowledge in other fields. We announce other researchers to employ additional criteria for determining the usefulness of technology in educational institutions for growth and development of our country.

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ROLE OF TECHNOLOGY ON TEACHING-LEARNING METHODOLOGY

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INTRODUCTION

Technology can be defined as something that makes life comfortable. In today's modern era, it can be considered as everything with the help of which we are able to do any of our tasks relatively easily and quickly. In this way, it can be said that technology is a suffix, which is related to each device that is able to complete any task in a relatively short time and with reduced effort, making it simple and easy. The use of technology in education is also an example of this. The devices or systems that make the teaching and learning process smooth, interesting and enjoyable, and the use of which makes learning easy and long lasting are called education technologies. In the current scenario, technology is integrated into the teaching-learning process at different levels. At this point it is necessary to know some general things about the use of technology. The content can be broadened by the use of technology. With the help of technical methods, the pre-determined objectives of learning can be achieved effectively and in reduced durations. Using technology, learners can be given the opportunity to learn according to their individual interests and can be helped in evolving academically. Using technology, a learner can be inspired to learn by action automatically even in the absence of a teacher, hence appropriate learning situations can be created using technology. Adequate reinforcement can be provided to learners using technology as corrective guidance is available on the spot and feedback channels are aptly deployed in the learning algorithms. In this paper, we will explore the use of technology in the teaching-learning process. For the use of technology in small group teaching, attention is given to the entire schematic of teaching-learning process and it is prepared in advance in accordance to the attainment of specific objectives; the entire process is conducted in a sequential manner by choosing the appropriate technique. Considering the number of learners, learning can be made more effective.

MODERN TOOLS AND TECHNIQUES USED FOR EDUCATION

A variety of digital aids listed below have contributed significantly in disrupting the education space which provides a varied experience to both, the learners and the teacher: Online Platforms: Various online platforms like WebEx, Google Classroom, Zoom, Microsoft Teams, GoToMeeting, Go To Webinar, etc., are being used in the education sector, though, it cannot be denied that the use of these platforms has increased during Covid-19. Most of the online education is being imparted using these online platforms. Video Conferencing and Tele Conferencing: Through these, the opinion of the expert located in any other corner of the world on any subject can be obtained through a visual or audio device in the classroom itself. A learning group can also use them to share their learning experiences with another group. Impact of Technology on Teaching-Learning in Higher Education 295 Electronic Board: These days, electronic boards and smart classrooms are becoming very popular in place of traditional blackboards in schools and colleges. Through this, the study material is presented in both, visual and audio forms through pictures. Computer and Internet: Human efforts have been considerably reduced by the help of available computers and allied software in the teaching spectrum. By this, even the most elaborate and complicated works are completed in a very short time. At the same time, the internet is a storehouse of unfathomable information with the option of retrieving information at any given point of time. In any corner of the world, information related to any event or new invention is made available to everyone, at the very next moment. Mobile Phones: Nowadays, mobile phones are also used as teaching aids. On a smart phone, learners can get guidance by searching the literature related to any problem from the internet. In this way, learners can use mobiles in most teaching curriculums, especially relevant for small groups with the student numbers between 2 to 30. As the number of learners in a small group teaching is limited, the teacher can also easily monitor the activities of the learners.

Projectors: Projectors can also be used effectively in small group teaching. Various pictures, graphs, videos, etc., related to a subject matter can be presented in a group with the help of a projector enabling learning through visual aids for complex subjects. Learners can also submit their work reports through the projector. Doordarshan and Radio: Doordarshan and Radio also broadcast educational programs through their various broadcasting centers. Through these programs, learning is made more effective and interesting by including knowledge in the process of teaching and learning. Data Recorders: Data recorders may compile the required information and opinions of subject matter experts in audio form and can be reproduced and submitted as and when required, as done now a days by various agencies like SWAYAM, Coursera, etc. Complicated Instruction: This instruction process is an innovative technique suggested by B.F. Skinner. It is of two types, linear and

branching. Through this, the content is presented in such a way that learners can continue learning even in the absence of the teacher.

USE OF TECHNOLOGY IN CO-LEARNER TEACHING

In the co-learner learning method, teaching is done by one learner from the learner group to the other learners of the group. This type of teaching-learning process can include the following techniques: Visual and Audio Technology: To make the content exciting and to give learners a perspective related to the content, visual material like DVD, YouTube and webcam, etc., can be used. Audio material in the form of radio, tape recorder, etc., can also be used in the classroom by a teacher. Use of Devices like Computer, Mobile, Tablet, etc.: Co-learner learning is a form of small group teaching. In this also, the teaching-learning process is done in small groups only. Therefore, in order to understand the subject matter more deeply, computers, mobiles, tablets, etc., can also be used. Learners also get online opportunities to learn from their co-learners through remote means as well. Many software programs are also available for the management of co-learner learning, which can be used by the co-learner teacher to facilitate the learning process. Aiding and taking computer-based assessment linked to co-learner learning, the feedback is received regularly and helps in effective learning (Wittenburg and Mcbride, 1998). Impact of Technology on Teaching-Learning in Higher Education 297 It is necessary to pay attention to some things before the use of technology in the co-learner learning process. These can be explained by the following points: It is necessary to the place where teaching learning process is done and where technology is available. Of the available techniques, the co-learner teacher technique becomes proficient in using certain techniques. If they do not know how to use technology, then it is necessary that they get trained for it. The selection and use of technology should be in accordance with the subject matter. The colearner teacher should also be trained on which phase of the teaching-learning process will be used (Kamens, 2007). In co-learner learning, technology can be used by incorporating the following organisational dimension: Interaction: The activity-oriented opportunities are provided to the learners in a technology-based activity. They interact before, during, or after the presentation. This plan should also be made by the learner teacher together with the teacher (Hansen, 2020). In case the teaching has to be done in one institution or any other institution, necessary video and teleconferencing should be arranged in advance (Stai, 2020).

USE OF TECHNOLOGY IN COLLABORATIVE LEARNING

In a collaborative learning situation, learners form small groups interact with the help of content, thus building knowledge. The attitude and skills that learners develop while interacting with their peers are also beneficial in their future life. Various technologies such as audio-visual equipment, computerbased learning, mobile, tablet, electronic board, etc., can be used in collaborative learning. This should be ensured when teachers form learner groups for collaborative learning. If some of the learners who are included in each group have knowledge about the technology used, then there should be some learners who do not have the knowledge of the technology used. In this way, they will be able to get learning by connecting the course with technology (Lipponen and Lallimo, 2004). Learners should be imparted training on various cooperative skills such as asking for help, giving suggestions and feedback, adopting suggestions in a positive manner, humility and delaying differences, etc. Learners enjoy learning more when they use these skills in a technologybased environment (Fu and Hwang, 2018). Groups of learners should be encouraged to ask for help from their group members first on a problem. If the problem is not solved by the group members, then help should be sought from members of other groups. Assistance should be provided by the teacher at the end so that autonomy can be achieved by all the members of the group in the use of the technique used (Alavi and Dufner, 2005). 298 Envisioning Business for a Better Tomorrow: Innovate, Integrate, Impact Interaction between learners should be encouraged continuously during technology-based activities in collaborative learning. When the learners are listening to an online lecture or reading any subject material, a separate time should be set aside to discuss it (Resta and Laferrière, 2007). In collaborative learning, the teacher should also ensure that all the members of the group get equal opportunities in the use of whatever technology is being used. Learners should be encouraged to make and submit their reports through computer or other such mediums.

USE OF TECHNOLOGY FOR BETTER GROUP DISCUSSIONS

Group discussion is a powerful means of active learning. A well-organized group discussion gives the participants the opportunity to discover new ideas and evaluate the views of other participants. Through the group discussion method, learners develop understanding and their subject matter knowledge also increases. The group discussion method is also helpful in increasing learners' self-confidence (Cuban, 1986). Fig. 1.2: Techniques for Group Discussion Method Electronic Discussion Boards: Properly guided electronic discussion boards provide opportunities for learners to make rich connections in the classroom. A question is written by the teacher on the electronic discussion board and the rest of the learners write their thoughts related to that question on the electronic discussion board (Cartwright, 2000). Impact of Technology on Teaching-Learning in Higher Education 299 Mobile Devices: Mobile devices such as smart phones, tablets, note books and computers

provide opportunities for learners to participate in group discussions. Some learners in the group who feel hesitant to express ideas in the group during normal meetings are able to express their ideas openly with the help of these tools (Pilkington et al., 2000). Microphone: Microphone can also be used in group discussion, so that one person's thoughts can reach everyone clearly. Participants who are provided with a microphone get the opportunity to express their views. In this way, all the participants in the group discussion method can be encouraged to think actively (Krentler and Willis-Flurry, 2005).

USE OF TECHNOLOGY IN GROUP PROJECTS

Group project-based teaching learning is a dynamic classroom perspective in which learners actively find solutions to a problem. They gain knowledge of the subject matter while facing the challenges of the project (Daniels et al., 2010). This emphasizes the experiential side of learning. Learners learn better what they experience themselves. In collective project teaching-learning, following techniques can be used by the learners while completing the project: Computer and internet can be used by the learners to find solutions to the problems. Through the internet, they can get information related to any subject. Using the computer, not only can the facts be obtained but they can also be compiled and learners can also prepare their report at the end of the project (Windschitl and Sahl, 2002). Mobile, tablet, etc., can also be used by learners to find a solution to a problem. DVD for compilation of sound and pictorial facts along with that tape recorder can also be used. A computer or projector etc. can also be used to present reports etc., in groups (Sadik, 2008).

USE OF TECHNOLOGY IN PSEUDO AND GAME-BASED LEARNING

In pseudo and game-based methodology, teaching-learning is made by making the process enjoyable by playing (Drumm, 2019). A virtual environment is created for teaching-learning in a pseudo and game-based situation that the learners find relevant. Pseudo and sports-based learning is also inspiring because learners can understand the relationship between learning experience and real life (Acquah et al., 2020). This type of learning requires effective interactive experiences for which many types of games have been developed. Teachers can use these games in their classroom to build knowledge in the 300 Envisioning Business for a Better Tomorrow: Innovate, Integrate, Impact learners by playing the class room in the shape of real life (Ferdinand et al., 2005). Computer and video games are used in pseudo and game-based learning. Through these computer-based games, the learning process is benefited in many ways. Motivation for learning is provided to learners by teaching and playing based learning. In these games, the content is presented to the learners as a challenge, so that they are motivated internally to play these games with more interest (Tang and Hanneghan, 2011). Through computerbased games, the tendency of learners to search is encouraged. Computer based games reduce the dangers present in real learning for learners. For example, while teaching chemistry, the danger of using the wrong chemicals is reduced in learning through these computer-based games (Hooshyar et al., 2016). Through computer-based games, the learners experience the real conditions of life in advance. It is also possible to emphasise on a particular fact of learning through computer-based games. The fact that needs to be emphasised is made mandatory in computer-based games. Computer based games provide challenging learning to learners, which increases their confidence level and they are able to solve real life challenges as well. Learners are also given opportunities to think through computer-based games (Galvis Guerrero, H.A., 2011). Through computer-based games, learners have to choose the best among options available. Therefore, selective abilities are also developed in the learners through computer-based games.

CONCLUSION

The present era is the era of technological advancements. Today's generation prefers and relies on E-resources. Normal blackboard and teacher-directed classroom are now considered as old-fashioned techniques. The utilization of available technological tools in both digital and social space can deeply impact the teaching-learning. The complete process of devising the curriculum or framework designing is based on the developmental needs of the target audience and use various tools and tricks to complement the basic cause of education and knowledge building. The process thus impacts the learning process in a manner that each learner is taught by one of the learners of the group hence developing leadership credentials in the overall personalities of the learners. This type of teaching-learning process involves the use of equipment such as visual and audio technology, computers, mobiles, tablets, etc. Learners online also get opportunities to learn from their co-learners through remote means. Many software-based learning tools are also available for facilitating co-learner education, which can be used by the co-learner teacher to facilitate the teaching process. In a collaborative learning situation, learners form small Impact of Technology on Teaching-Learning in Higher Education 301 groups and interact with the subject matter and build knowledge. For teachers' learning, when the teachers form groups for collaborative learning, it should be ensured that some of the learners who are included in each group have knowledge about the technology which is used. In collaborative learning, the teacher should also ensure that all the members of the group should get equal opportunities in the use of whatever technology is being used.

Group discussion is a powerful means of active learning. Through group discussion method, learners' understanding develops and their subject matter knowledge also increases. The group discussion method is also helpful in increasing learners' self-confidence. Electronic discussion boards, mobile devices, and microphone group discussion methods can be made effective. Group project-based learning is a dynamic classroom room perspective, in which learners actively find solutions to a problem. They gain knowledge of the subject matter while facing the challenges of the project. This emphasizes the experiential side of learning. Learners learn better when they are put in a situation where they experience the situations by themselves. In pseudo and game-based teaching, the process of teaching-learning is made easier by making the learning process enjoyable. A virtual environment is created for teaching-learning in a pseudo and game-based situation that the learners find relevant. Pseudo and sports-based learning is also inspiring because learners can understand the relationship between learning experience and real-life situations. There is no doubt that the use of technology in the education sector is going to increase in future. More and more online platforms will be used for teaching and learning as technology further invades educational processes. The teachers and learners are going to be immensely benefitted by the use of technology in education.

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"शिक्षा में प्रौद्योगिकी का महत्व"

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संक्षेप

वर्तमान युग प्रौद्योगिकी का युग है, क्योंकि प्रौद्योगिकी ने हमारे सामाजिक, आर्थिक, राजनीतिक आदि जीवन के सभी पक्षों को व्यापकता के साथ प्रभावित और निर्धारित किया है. आज बिना प्रौद्योगिकी के जीवन की कल्पना भी नहीं की जा सकती है.

प्रौद्योगिकी ने आधुनिक शिक्षा व्यवस्था को संपूर्ण व्यापकता के साथ प्रभावित और निर्धारित किया है. शिक्षा के समस्त पक्ष आज प्रौद्योगिकी से संचालित हो रहे हैं . बिना आधुनिक प्रौद्योगिकी के गुणवत्ता युक्त शिक्षण संभव ही नहीं रह गया है.प्रौद्योगिकी अनेक ऑनलाइन संसाधनों तक पहुंच प्रदान करती है, जो स्वतंत्र शिक्षण और अनुसंधान का समर्थन करते हैं. यह अवधारणाओं को समझने में आसान बनाकर सीखने की प्रक्रिया को सरल बनाने में भी मदद करता है, उदाहरण के लिए वीडियो के माध्यम से.

प्रौद्योगिकी ने हमारी शिक्षा को नाटकीय रूप से बदल दिया है।अब हमें कक्षाओं में पारंपरिक ब्लैक बोर्ड और चाकके स्थान पर डिजिटल बोर्ड और इलेक्ट्रॉनिक पेन हाथ में लिए हुए आधुनिक शिक्षक-शिक्षिकाएं दिखाई देते हैं. वर्तमान शिक्षक और छात्र तकनीक आधारित 'डिजिटल युग' के मूल निवासी हैं,जो प्रौद्योगिकी से घिरे हुए बड़े हुए हैं और इसके आदी हैं.

प्रस्तावना

प्रौद्योगिकी ने छात्रों, शिक्षकों और प्रशासकों के संचार और सहयोग के तरीके में क्रांति ला दी है. ऑनलाइन प्लेटफ़ॉर्म और सोशल मीडिया के साथछात्र विचार साझा कर सकते हैं, परियोजनाओं पर काम कर सकते हैं और चाहे वे कहीं भी हों, जुड़े रह सकते हैं. वे अन्य स्कूलों या देशों के सहपाठियों के साथ परियोजनाओं पर भी काम कर सकते हैं, भौगोलिक बाधाओं को तोड़ सकते हैं और कक्षा में समुदाय की भावना का निर्माण कर सकते हैं.

शिक्षा में तकनीक के महत्व को हम निम्न प्रकार से स्पष्ट कर सकते हैं-

1- रचनात्मकता और नवीनता को प्रोत्साहन-

तकनीक शिक्षक और छात्र की एकेडमिक कल्पनाओं को मूर्त रूप प्रदान करने में सक्षम है.प्रौद्योगिकी ने छात्रों के लिए रचनात्मक और नवोन्वेषी बनने के अवसरों की दुनिया खोल दी है. अपनी उंगलियों पर ढेर सारी जानकारी और संसाधनों तक पहुंच के साथ, छात्र प्रयोग कर सकते हैं, अन्वेषण कर सकते हैं और अपने विचारों को जीवन में ला सकते हैं.

इससे शिक्षण का अनुभव बेहतर हो रहा है.आधुनिक तकनीक शिक्षा के क्षेत्र में शिक्षकों और छात्रों दोनों को नवाचारों के लिए प्रेरितकर रही है. शिक्षक और छात्र डिजिटल टेक्नोलॉजी के माध्यम से कंप्यूटर पर आकर्षक, सरल और और प्रभावी ग्राफिक निर्मित कर सकते हैं और करते हैं. जिससे वे अपने लेक्चर को प्रभावी ढंग से छात्रों को समझा सकते हैं. उदाहरण के लिए,शिक्षक और छात्र एनिमेशन और वीडियो बना सकते हैं तथा इसे ग्राफिक डिजाइन सॉफ्टवेयर के द्वारा जीवंतता प्रदान कर सकते हैं. अपने आविष्कारों के डिजाइन और प्रोटोटाइप बनाने के लिए 3D प्रिंटिंग का उपयोग कर सकते हैं. इस प्रकार से शिक्षा के नवाचार तकनीक के माध्यम से संभव होते हैं तथा तकनीक शिक्षा को अधिक सरल, सहजऔर बोधगम्य बनाने में सहायक है.

2- प्रतिभाशाली व्यक्तियों को अवसर-

आधुनिक तकनीक ने अनेक प्रतिभाशाली व्यक्तियों को सामूहिक शिक्षण का अवसर प्रदान करके उन्हें प्रभावशाली शिक्षक के रूप में समाज में स्थापित किया है. आज हम ऐसे अनेक शिक्षकों को जानते हैं, जिन्होंने 'you tube' के माध्यम से अपने आप को राष्ट्रीय स्तर पर एक श्रेष्ठ शिक्षक के रूप में स्थापित किया है. उदाहरण के लिए, खान सर, फिजिक्स वाला के अलख पांडे आदि. अगर तकनीक ना होती, तो यह सभी शिक्षक प्रतिभाशाली होते हुए भी गुमनाम जिंदगी जीते हुए समाप्त हो गए होते. इसलिए तकनीक प्रतिभाशालियों को पहचान और व्यवसाय प्रदान करने का प्रभावी माध्यम है, वह भी न्यूनतम निवेश पर.

3- संचार, सहयोग और समन्वय में सहायक-

तकनीक शिक्षकों, छात्रों और प्रशासकों के मध्य प्रभावी और त्वरित संचार तथा सहयोग और समन्वय स्थापित करने में अत्यधिक सहायक है. प्रशासनिक अधिकारी शिक्षण संस्थानों के प्रमुखों से किसी भी विषय पर तत्काल सूचनाओं, विचारोंऔर निर्देशों का आदान-प्रदान कर सकते हैं. शिक्षक व प्राचार्य उच्च स्तर तक अपने अपनी समस्याओं, सुझावों और विचारों से सरकार को अवगत करा सकते हैं तथा समस्याओं का त्वरित समाधान भी किया जा सकता है. शिक्षक ऑनलाइन शिक्षण प्रणाली का प्रयोग करते हुए छात्रों के लिए 'क्विज' बना सकते हैं तथा उनकी प्रतिक्रियाओं और सुझावों को अल्प समय में ज्ञात कर सकते हैं. वे छात्रों का भ्रम निवारण करते हुए उनका उचित मार्गदर्शन भी कर सकते हैं. इससे छात्रों का बौद्धिक विकास संभव होता है. विभिन्न छात्र भी आपस में एक-दूसरे के साथ शिक्षण सामग्री का आदान-प्रदान इंटरनेट, व्हाट्सएप आदि के माध्यम से कर सकते हैं. वे पाठ्यक्रम को एक-दूसरे के साथ मिलकरके समझने में सहायक हो सकते हैं. प्रसन्नता की बात है, कि ऐसा निरंतर हो रहा है.

4- ऑनलाइन प्रतियोगी परीक्षाओं का संचालन-

तकनीक के प्रयोग से विभिन्न प्रतियोगी परीक्षाओं का ऑनलाइन संचालन किया जा रहा है, जिसमें छात्रों के द्वारा दिए गए उत्तरों को रिकॉर्ड कर लिया जाता है, सुरक्षित रखा जाता है और बहुत कम समय में तकनीक के प्रयोग से परीक्षा परिणाम घोषित कर दिए जाते हैं. प्रश्न-पत्र संबंधी छात्रों की शिकायतों का निवारण भी तकनीक के माध्यम से तेजी से करना संभव हुआ है.

5- ज्ञान के विभिन्न स्रोतों तक पहुंच-

आधुनिक तकनीक के प्रयोग से छात्र ज्ञान के विभिन्न स्रोतों तक आसानी से पहुंचने में सक्षम हुए हैं. वह किसी भी यूट्यूब चैनल को आसानी से देख कर उससे उपयोगी सामग्री प्राप्त कर सकते हैं.

6- अंतरराष्ट्रीय स्तर के विशेषज्ञों व संस्थाओं के ज्ञान का लाभ प्राप्त करना-

आधुनिक प्रौद्योगिकी ने छात्रों को प्रसिद्ध विश्वविद्यालय, शोध संस्थान तथा विशेषज्ञों के ज्ञान का लाभ प्राप्त करने में सक्षम बना दिया है. आज कोई भी छात्र 'इसरो' या 'नासा' जैसे उच्च कोटि के संस्थाओं से जानकारी प्राप्त कर सकता है, वह भी निशुल्क.

7- न्यूनतम शुल्क पर गुणवत्ता युक्त शिक्षा-

तकनीक ने शिक्षा को सस्ता और आसानी से सुलभ बना दिया है. कमजोर आय वर्ग के छात्रों और दूर दराज के क्षेत्रों में रहने वाले छात्रों के लिए न्यूनतम शुल्क पर गुणवत्ता युक्त शिक्षा आसानी से उपलब्ध हो रही है. अनेक शैक्षणिक प्लेटफार्म यह कार्य पूरी कुशलता के साथ संपन्न कर रहे हैं. वैश्विक महामारी कोविद के दौरान हमने शिक्षा में तकनीक के कल्याणकारी उपयोग को सुखद आश्चर्य के साथ देखा था. सामाजिक कारणसे जिन व्यक्तियों को उनके परीजन पढ़ने के लिए बाहर नहीं भेज सकते, तकनीक आधारित शैक्षणिक प्लेटफार्म

पर वे भी अच्छी शिक्षा घर बैठे प्राप्त कर सकते हैं, विशेष करके लड़कियां जिन्हें सुरक्षा कारण से शहरों में भेजने से अनेक माता-पिता औरअभिभावक कतराते हैं.

8- वैयक्तिक शिक्षण मेंसहायक-

शिक्षा में प्रौद्योगिकी का सबसे बड़ा लाभ वैयक्तिक शिक्षण है. ऑनलाइन संसाधनों और शैक्षिक सॉफ़्टवेयर के साथ, छात्र अपनी आवश्यकताओं, रुचियों और सीखने की शैली के अनुरूप जानकारी पा सकते हैं. वे अपनी गति से काम कर सकते हैं, यदि आवश्यक हो तो पाठ दोहरा सकते हैं, और अपनी पढ़ाई के लिए प्रासंगिक जानकारी तक पहुंच सकते हैं. इस प्रकार की व्यक्तिगत शिक्षा छात्रों को प्रेरित रहने और बेहतर परिणाम प्राप्त करने में मदद कर सकती है.

शिक्षा में प्रौद्योगिकी संबंधी समस्याएं-

प्रौद्योगिकी ने जहां शिक्षा को आसान, सर्व सुलभ, बोधगम्य और आकर्षक बनाया है, वहीं इसने अनेक समस्याओं को भी जन्म दिया है.शिक्षा में तकनीकसंबंधीसमस्याओं को हम निम्न प्रकार से स्पष्ट कर सकते हैं-

1. आज विभिन्न प्रश्न पत्रों का परीक्षा के पूर्व लीक हो जाना अर्थात पेपर आउट हो जाना एक सामान्य घटना बनती जा रही है.
2. कृत्रिम बुद्धिमत्ता ने छात्रों को आलसी बना दिया है और वह बिना परिश्रम के सामग्री को प्राप्त करते हैं और अपने नाम से प्रस्तुत कर देते हैं, इससे छात्रों की चिंतनशीलता और परिश्रमशीलता का तेजी से पतन हो रहा है.
3. दूसरों के द्वारा निर्मित शिक्षण सामग्री की चोरी करके उसका लाभ उठाया जा रहा है, जो की शिक्षा में अनैतिकता को बढ़ावा दे रहा है.
4. ऐसे छात्र जो कि संचार के आधुनिक साधनों को खरीद नहीं सकते. वे इसके लाभों से वंचित रह रहे हैं और पिछड़ते जा रहे हैं.
5. महंगा होता हुआ इंटरनेट डाटा और बिजली की उपलब्धता की समस्या भी शिक्षा के तकनीक के प्रयोग जनित लाभों को उठाने में बाधा उत्पन्न कर रही है.
6. तकनीक ने गुरु शिष्य परंपरा को कमजोर किया है और कक्षा आधारित शिक्षण प्रणाली को भी कमजोर किया है.
7. अनेक छात्र विद्यालय और महाविद्यालय में नजाकर शिक्षा प्लेटफार्म से शिक्षा प्राप्त कर रहे हैं. इससे उनका व्यक्तित्व अच्छी तरह से विकसित नहीं हो पा रहा है, जो कि भविष्य में एक गंभीर समस्या बन सकता है.

शिक्षण में प्रौद्योगिकी के कल्याणकारी प्रयोग को बढ़ावा देने के लिए सुझाव-

शिक्षण में प्रौद्योगिकी के कल्याणकारी प्रयोग को बढ़ावा देने के लिए तथा इसके दुरुपयोग को रोकने के लिए निम्न सुझाव प्रस्तुत किए जा रहे हैं-

1. शिक्षा में उपयोगी तकनीक आधारित उपकरणों को न्यूनतम कीमत पर छात्रों को उपलब्ध कराया जाना चाहिए, जैसे- स्मार्टफोन, कंप्यूटर, लैपटॉप आदि .
2. छात्रों को सामान्य से कम कीमत पर इंटरनेट डाटा उपलब्ध कराया जाना चाहिए.
3. दूर-दराज के क्षेत्र में इंटरनेट की पहुंच और बिजली की उपलब्धता सुनिश्चित की जानी चाहिए, ताकि वहां के छात्र भी इसका लाभ उठा सकें.
4. शिक्षा के क्षेत्र में तकनीक के दुरुपयोग को रोकने के लिए कड़े कानून बनाए जाने चाहिए और उन्हें इमानदारी से लागू करना चाहिए.
5. कृत्रिम बुद्धिमत्ता को शिक्षा के क्षेत्र में प्रतिबंधित किया जाना चाहिए.

निष्कर्ष

इस प्रकार से, आधुनिक तकनीक ने शिक्षा को व्यापक रूप से प्रभावित किया है और इसका प्रभाव ज्ञान, विज्ञान और तकनीक के विकास के साथ तेजी से बढ़ता जा रहा है.शिक्षा में प्रौद्योगिकी का भविष्य उज्ज्वल और संभावनाओं से भरा है.भविष्य की शिक्षा तकनीक आधारित शिक्षा होगी,इसमें कोई दो राय नहीं है, लेकिन हमें यह ध्यान रखना चाहिए,किशिक्षा में तकनीक सहायक है, मूल तत्व नहीं. कक्षा आधारित शिक्षण और गुरु के महत्व को यह प्रतिस्थापित न करे, हमें इसके लिए सचेत और प्रयत्नशील रहना चाहिए. अगर ऐसा हुआ. तो शिक्षा सृजन के स्थान पर विनाश का साधन बन सकती है .

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"शिक्षा में तकनीकी के नये आयाम"

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(अतिथि विद्वान) राजनीति विज्ञान शासकीय महाविद्यालय राऊ, इंदौर

संक्षेप-
वर्तमान में शिक्षा व्यवस्था पुरातन परम्पराओ को छोड़कर नवीन क्षेत्र में प्रवेश कर रही है। विभिन्न शिक्षण विधियों का महत्व बढ़ रहा है, जिससे शिक्षक तथा छात्र दोनों लाभान्वित हो रहे है। शिक्षा व्यवस्था में जो परिवर्तन हुए है उससे शैक्षणिक स्तर में वृद्धि हुई है। तकनीक के प्रयोग से विद्यार्थियों को अध्ययन करने में सशक्तता प्राप्त हो रही है। शिक्षा में तकनीकी के विकास के कारण सभी की ज्ञान संपदा में बढ़ोत्तरी हो रही है। शिक्षा व्यवस्था में तकनीकी के प्रयोग से ऐनीमेशन, गैमिफिकेशन तथा ऑडियों विजुअल प्रभावों द्वारा उसे अत्यधिक प्रभावपूर्ण तथा तीव्रता से ग्रहण किया जा सकता है, डिजिटल शिक्षा समस्त संवर्गो हेतु अध्यापन का एक आनंद प्रदाय साधन है। यह बच्चों के लिए विशेषतः सीखने का एक प्रभावपूर्ण साधन साबित हो रहा है। वर्तमान में डिजिटल शिक्षण सामग्री जैसेः- पी.पी.टी., विडियो प्रस्तुतियों, ई-लर्निंग विधियों, ऑनलाईन प्रशिक्षण तथा अन्य डिजिटल पद्धतियों के उपयोग करने के कारण कक्षा में अध्यापन कार्य अतिसंप्रेषण हो गया है। शिक्षा मे डिजिटल मीडिया के उपयोग से छात्रों की सहभागिता में वृद्धि होती है। इससे शिक्षको तथा प्रशिक्षको को परस्पर संवाद में सम्मिलित होने का अवसर मिलता है। ई-लर्निंग तथा दूरस्थ शिक्षा कार्यक्रमों में ऑनलाईन शिक्षा से शिक्षण कार्य अतिरोचक तथा सरल हो रहा है। इंटरनेट तथा वर्ल्ड वेब के द्वारा शिक्षक तथा विद्यार्थियों में आसानी से संप्रेषण हो सकता है। आई.सी.टी. डिजिटल पुस्तकालय जैसेः-डिजिटल साधनों के सृजन में सहायक है, जिससे समस्त वर्ग शोध सामग्री तथा पाठ्यक्रम सामग्री प्राप्त कर सकते हैं। भारत सरकार द्वारा जुलाई 2015 में डिजिटल इंडिया की शुरूआत की गई, जिससे ऑनलाईन बुनियादी ढांचे को सुदृढ़ करते हुए समस्त नागरिकों के मध्य इंटरनेट उपलब्ध कराया जा सके। शिक्षा व्यवस्था में हुए परिवर्तन के कारण डिजिटल शिक्षा को तीव्रता से अपनाने से युवावर्ग के शैक्षणिक स्तर में बढ़ोत्तरी हुई है। डिजिटल कक्षाओं से संप्रेषण तथा सहयोगात्मक शिक्षण अनुभवों में वृद्धि होती है तथा महत्वपूर्ण चिंतन तथा समस्या-समाधान कुशलता को बढ़ावा मिलता है। डिजिटल शिक्षा के माध्यम से विद्यार्थी अपनी आवश्यकता तथा समयानुसार अध्ययन करने में सक्षम होते हैं। इसके माध्यम से छात्र किसी भी समय एवं किसी भी स्थान में शैक्षणिक सामग्री तथा संसाधन प्राप्त कर सकते हैं। शिक्षकों को भी अध्यापन में तकनीकी का प्रयोग करके उसे बेहतर बनाने में सुविधा होती है तथा वे नवीन विचारों के समावेश तथा नवाचार करके विद्यार्थियों को अत्यधिक प्रभावपूर्ण तरीके से प्रशिक्षित करने में सफल होते हैं। शैक्षणिक तकनीकी के माध्यम से विद्यार्थियों की ज्ञान कुशलता तथा विचारशीलता में प्रगति होती है जो उनके संपूर्ण विकास में सहयोगी है। शिक्षा में तकनीकी को महत्व दिये जाने के कारण ज्ञान संपदा में तीव्रता से परिवर्तन हुआ है जिससे युवा वर्ग अपने आपको नवाचार की क्रांति के केन्द्र में महसूस कर रहा है।

प्रस्तावना-

शिक्षा हम सबके जीवन का एक महत्वपूर्ण भाग है। वर्तमान में शिक्षा व्यवस्था पुरातन परम्पराओं को छोड़कर नवीन क्षेत्र में प्रवेश कर रही है। विभिन्न शिक्षण विधियों का महत्व बढ़ रहा है जिससे शिक्षक तथा छात्र दोनों लाभान्वित हो रहे है।

शिक्षा व्यवस्था में जो परिवर्तन हुए है उससे शैक्षणिक स्तर में वृद्धि हुई है। एक तरफ शिक्षा से मनुष्य के व्यवहार में बदलाव के साथ-साथ उसकी समझ तथा सोच का विकास होता है, वहीं शिक्षा में तकनीकी का उपयोग उसे सरलता से ग्रहण करने योग्य तथा रूचिकर बनाता है। तकनीकी के प्रयोग से विद्यार्थियों को

अध्ययन करने में सशक्तता प्राप्त हो रही है। क्योंकि विभिन्न शैक्षिक तकनीकी तथा सूचना तकनीकी का प्रयोग कर विद्यार्थी अपनी सुविधा, समय, रूचि तथा क्षमता के अनुसार स्वयं के ज्ञान का सृजन कर सकता है।

आज के वैज्ञानिक युग में विज्ञान ने मानव जीवन के समस्त पहलूओं को प्रभावित किया है जिससे शिक्षा का क्षेत्र भी अछूता नहीं रहा है। पुराने समय से लेकर वर्तमान काल तक ज्ञान का संचय करने, प्रसारित करने तथा विकसित करने की विधियों में बदलाव होता रहा है।

तकनीकी विकास के परिणामस्वरूप ज्ञान की निर्माण प्रक्रिया व आदान-प्रदान में समय के साथ परिवर्तन होता रहा है।

शिक्षा व्यवस्था में तकनीकी के प्रयोग से एनीमेशन, गैमिफिकेशन तथा ऑडियों विजुअल प्रभावों द्वारा उसे अत्याधिक प्रभावपूर्ण तथा तीव्रता से ग्रहण किया जा सकता है, डिजिटल शिक्षा समस्त संवर्गो हेतु अध्यापन का एक आनंद प्रदाय साधन है। यह बच्चों के लिए विशेषतः सीखने का एक प्रभावपूर्ण साधन साबित हो रहा है। वर्तमान में डिजिटल शिक्षण सामग्री जैसे पी.पी.टी., वीडियो प्रस्तुतियों, ई-लर्निंग विधियों ऑनलाईन प्रशिक्षण तथा अन्य पद्धतियों के उपयोग करने के कारण कक्षा में अध्यापन कार्य अति सरलतम हो गया है।

तकनीकी विकास विद्यार्थियों को अनगिनत ऑनलाईन संसाधन तक पहुचाने तथा सीखने की प्रक्रिया में सहयोग करता है, ऑनलाईन शिक्षण के माध्यम से विदयार्थी काम के साथ पढ़ाई भी कर सकते हैं।

ऑनलाईन संसाधनों जैसे गूगल क्लास रूम, माइक्रोसॉफट टीम्स तथा जूम आदि के माध्यम से विद्यार्थी अपने निर्धारित स्थान से परियोजनाओं में सहायता कर सकते हैं। यह विद्यार्थियों को अति कुशलतापूर्वक परस्पर कार्य करने, विचार-विमर्श करने तथा एक दूसरे से सीखने में सक्षमता प्रदान करता है।

ई-लाइब्रेरी, ई-क्लिीपिंग, ई-जर्नल, ई-बुक्स जैसे ई-लर्निंग साधनों के द्वारा विद्यार्थी विषय वस्तु को आसानी से प्राप्त कर सकता है। इंटरनेट तथा वर्ल्ड वेब के द्वारा शिक्षक तथा विद्यार्थियों में आसानी से संप्रेषण हो सकता है। भारत सरकार द्वारा जुलाई 2015 में डिजिटल ईडिया की शुरूआत की गई जिससे ऑनलाईन बुनियादी ढॉचे को सुदृढ़ करते हुए समस्त नागरिकों के मध्य इंटरनेट उपलब्ध कराया जा सके।

आई. सी. टी. डिजिटल पुस्तकालय जैसे डिजिटल साधनों के सृजन में सहायक है, जिससे समस्त वर्ग शोर्ध सामग्री तथा पाठ्यक्रम सामग्री प्राप्त कर सकते हैं।

सूचना एवं संचार तकनीकी छात्रों सामूहिक रूप से सीखने में मददगार है तथा इसके उचित प्रयोग द्वारा छात्रों के समूह को पढ़ाया जा सकता है। इंटरनेट तथा मोबाईल संचार द्वारा सूचनाओं को संचार के सुदूरवर्ती भागों में तीव्र गति से पहुंचाया जा सकता है।

शैक्षिक तकनीकी में ओवर हेड प्रोजक्टर, चॉकबोर्ड, टीवी, कम्प्यूटर जैसे आंडियों विजुअल सहाय उपकरण मशीन इत्यादि तकनीकी विकास के प्रयोग से शिक्षा के क्षेत्र में नवीन ऊंचाइयों की प्राप्ती हुई है।

जन्म से बहरे एवं दृष्टिहीन व्यक्ति भी इन तकनीको तथा प्रशिक्षण द्वारा ज्ञान प्राप्त कर सकते हैं। ऐसे लोगों के लिए ब्रेल लिपि पूर्ण अथवा बोलने वाले कम्प्यूटर तथा लेपटॉप उपयोग होने लगे है। ऑडियो वीडियों के माध्यम से छात्रों के दिमाग में संज्ञानात्मक तत्व की वृद्धि होती है जो उनमे विषय के प्रति रोचकता, जागरूकता, उत्साह तथा मनोरंजन की भावना पैदा करती है, जो उनके तीव्रता से सीखने में सहयोगी होती है।

इस तरह सूचना तकनीकी का उपयोग करके विशेष आवश्यकता वाले विद्यार्थी भी अन्य विद्यार्थियों की तरह ज्ञान प्राप्त कर सकते हैं।

शैक्षिक तकनीकी ऐसे छात्रों तक शिक्षा की सुविधाएं पहुंचाने में भी अग्रसर है जो छात्र न तो विद्यालय आ पाते हैं और न ही विद्यालयीन सुविधाएं उन तक पहुंच पाती है। स्लाईड शो, आई पैड तथा लेपटॉप जैसे उन्नत तकनीकी साधनों के प्रयोग सी लाभदायक है। छात्र द्वारा पाठ्यक्रम में डिजिटल तकनीकी का उपयोग करने से समस्त विद्यार्थियों को उन डिजिटल कुशलता में सुधार करने का मौका मिलता है। डिजिटल शिक्षा के माध्यम से विद्यार्थी अपनी आवश्यकता तथा समयानुसार अध्ययन करने में सक्षम होते हैं। इसके माध्यम से छात्र किसी भी समय एवं किसी भी स्थान में शैक्षणिक सामग्री तथा संसाधन प्राप्त कर सकते हैं। डिजिटल

कक्षाओं से संप्रेषण तथा सहयोगात्मक शिक्षण अनुभवों में वृद्धि होती है तथा महत्वपूर्ण चिंतन तथा समस्या-समाधान कुशलता को बढ़ावा मिलता है। व्यक्तिगत शिक्षण विधियों के आधार पर पाठ्य सामग्री को बनाने की क्षमता के साथ डिजिटल कक्षाएं विद्यार्थियों की विभिन्न आवष्यकताओं का पूर्ण करते हुए अति व्यक्तिगत अध्ययन सुनिश्चित करती है। डिजिटल शिक्षा से विद्यार्थियों हेतु परंपरागत कक्षा व्यवस्था में उपलब्ध सीमित साधनों पर बिना निर्भरता के विविध तरह की सामग्रियों के साथ संवाद एवं अध्ययन करना संभव होता है। विद्यार्थी बुनियादी डिजिटल कुशलता तथा तकनीकी के सहयोग से अति सरलता से जानकारी का अध्ययन, संकलन एवं जांच कर सकता है।

शिक्षकों को भी अध्यापन में तकनीकी का प्रयोग करके उसे बेहतर बनाने में सुविधा होती है तथा वे नवीन विचारों के समावेष तथा नवाचार करके विद्यार्थियों को अत्याधिक प्रभावपूर्ण तरीके से प्रषिक्षित करने में सफल होते हैं।

शैक्षिक तकनीकी शिक्षकों तथा प्रशिक्षकों को परस्पर सम्मान तथा परस्पर आधारित संवाद में सम्मिलित होने का मौका प्रदान करता है। शिक्षक अपनी शिक्षण सामग्री का आसान तथा प्रभावपूर्ण रूप से प्रस्तुत करने में सक्षम होते हैं।

शिक्षा में तकनीकी के उपयोग के कारण यह अतिसुलभ, आकर्षक तथा संप्रेषित हो गई है। जिससे विद्यार्थियों एवं शिक्षकों हेतु अनंत संभावनाएं उत्पन्न हो गई है। इसके कारण विद्यार्थियों के अध्ययन तथा शिक्षकों के अध्यापन के तरीकों में क्रांति की आ गई है।

प्राकृतिक भाषा संस्करण तथा मशीन लर्निंग जैसी ए आई सक्षम तकनीकों का कक्षाओं में तीव्रता मं उपयोग करने से सीखना सरल तथा अति आकर्षक होता जा रहा है।

तकनीकी विकास के कारण शिक्षा की गुणवत्ता में वृद्धि हुई है, तथा शिक्षा प्रणाली को एक नवीन दिषा मिल रही है। इसके द्वारा विद्यार्थियों के ज्ञान कुशलता तथा विचारशीलता में वृद्धि हो रही है। जो छात्रों के संपूर्ण विकास में सहायक है।

अध्ययन तथा अध्यापन अनुभवों में सुधार हो रहा है। इसमें जानकारी को अच्छे ढंग से बनाया जा सकता है जिससे विद्यार्थियों के शैक्षणिक प्रदर्शन में सुधार संभव है।

शिक्षा में तकनीकी का महत्व दिये जाने के कारण ज्ञान संपदा में तीव्रता से परिवर्तन हुआ है जिससे युवा वर्ग अपने आपको नवाचार की क्रांति के केन्द्र में महसूस कर रहा है।

शिक्षा में तकनीकी के विकास ने युवावर्ग को सही शिक्षा , कुशलता तथा सीखने की मनोवृति से परिपूर्ण कर दिया है।

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संक्षेप- वर्तमान समय में ऑनलाइन शिक्षण और नई प्रौद्योगिकियाँ विश्वव्यापी शिक्षा में एक महत्वपूर्ण भूमिका निभा रही है। समय के साथ इसका प्रचलन तीव्र गति से बढ़ रहा है। विश्वविद्यालयों और प्रशिक्षण प्रदाताओं द्वारा इसे शैक्षणिक पहुँच के लिए रामबाण बताया जा रहा है। डिजिटल प्रौद्योगिकी की उन्नति के कारण ऑनलाइन शिक्षा को एक महत्वपूर्ण शिक्षा प्राप्ति के साधन के रूप में स्वीकार किया जा रहा है। जो सिखाने और शिक्षा प्रदान करने के लिए एक नया माध्यम प्रदान करता है। शिक्षा अपने मूल में समाजीकरण की एक प्रक्रिया है। जब-जब समाज का स्वरूप बदला, शिक्षा के स्वरूप में भी बदलाव करने पड़े। कोरोना महामारी के समय जब मानव समाज पर संकट आया, तब उसका मुकाबला करने के लिए अनेक क्षेत्रों में अनेक नीतियाँ बदलनी पड़ी या नई बनानी पड़ी। ऑनलाइन शिक्षा जो तब कुछ संस्थानों या व्यक्तियों तक ही सीमित था, वह कोरोना काल में आमजन तक पहुँच गया। ऑनलाइन शिक्षा भारत के लिए असाधारण प्रासंगिकता रखती हैं क्योंकि भारत की आबादी में युवाओं का बहुमत है। महामारी के बाद के समय में, ऑनलाइन शिक्षा को देश की उच्च शिक्षा प्रणाली को लगातार बढ़ावा देने के लाइसेंस के रूप में देखा जा सकता है। 21वीं सदी में ऑनलाइन एक गतिशील शिक्षा प्रवृत्ति के रूप में उभरी है, जो छात्रों के लिए घर बैठे ही डिग्री हासिल करने और अपने कैरियर को बढ़ाने का मार्ग प्रशस्त कर रही है। पिछले कुछ दशकों में ऑनलाइन शिक्षा के माध्यम से समाज में शिक्षा के क्षेत्र में अभूतपूर्व परिवर्तन देखा गया है। इसके माध्यम से पारंपरिक शिक्षा के परिदृश्य को बदल कर रख दिया है। इसने शिक्षा व्यवसाय में भी व्यापक क्रांतिकारी परिवर्तन लाया है। इससे समाज के विभिन्न हितधारकों, जैसे शिक्षण संस्थान, छात्र, शिक्षकों आदि को बड़े पैमाने पर आर्थिक रूप से प्रभावित किया है। भारत को डिजिटल रूप से सशक्त समाज और ज्ञान अर्थव्यवस्था में बदलने के डिजिटल इंडिया कार्यक्रम के दृष्टिकोण के साथ भारत में शिक्षा क्षेत्र में आने वाले वर्षो में व्यापक वृद्धि देखने को मिलेगी। प्रौद्योगिकी आधारित शिक्षा की पहुंच और सरलता से भारतीय शिक्षार्थियों के जीवन में सामाजिक आर्थिक परिवर्तन लाएगी। आज का युग विज्ञान व तकनीक का युग है। मनुष्य के जीवन का ऐसा ही एक क्षेत्र शिक्षा हैं जिसमें तकनीक, विज्ञान व इंटरनेट की पकड़ बढ़ती जा रही है। बीते कुछ समय में ऑनलाइन शिक्षा का विस्तार हुआ है। कोविड-19 महामारी के दौरान शायद ही कोई ऐसा शिक्षक एवं विद्यार्थी वर्ग रहा हो जो ऑनलाइन शिक्षा पर निर्भर ना रहा हो। भारत की नई शिक्षा नीति भी ऑनलाइन शिक्षा के विकास एवं विस्तार पर ध्यान केंद्रित करती है।

प्रस्तावनाः-

संसार में ज्ञान के समान कुछ भी पवित्र नहीं है। ज्ञान ही मनुष्य की आशंकाओं और जिज्ञासाओं को दूर करता है। इस ज्ञान रूपी दिव्य आलौकिक मार्ग से मनुष्य को पूर्णता की प्राप्ति का मार्ग प्रषस्त होता है। नई राष्ट्रीय शिक्षा नीति इसी संकल्पना को यथार्थ रूप देने का रास्ता बताती है, जिसके तहत सभी के लिए समावेशी और समान गुणवत्तायुक्त शिक्षा सुनिष्चित करने और जीवन-पर्यन्त शिक्षा के अवसरों को बढ़ावा दिए जाने का लक्ष्य निर्धारित किया गया है। ऐसी स्थिति में एक ऐसी शिक्षा नीति आवष्यक महसूस की गयी थी, जिसके आधार पर वर्तमान की शिक्षा व्यवस्था में पीढ़ीगत बदलाव लाया जा सके ताकि वह बदलते परिदृष्य से उपजी जरूरतों को पूरा करने का काम कर सके। इस राष्ट्रीय शिक्षा नीति में ज्ञान आधारित सृजनात्मकता व रचनात्मकता के साथ प्रारंभिक शिक्षा से लेकर उच्चतर शिक्षा नीति का खाका है। इस नीति में न केवल शिक्षा के ढ़ाचे में शिक्षा पद्धति में सुधार, नवाचार व अनुसंधान के साथ मनुष्य निर्माण पर जोर दिया गया है। पुरानी

शिक्षा नीति का झुकाव मुख्य रूप से शिक्षा तक पहुँच के मुद्दों पर था। नवीन राष्ट्रीय शिक्षा नीति 2020, 21वीं शताब्दी की पहली शिक्षा नीति है, जिसका लक्ष्य हमारे देश के विकास के लिए अनिवार्य आवष्यकताओं को पूरा करना है।

किसी देश का विकास उस देश की शिक्षा प्रणाली पर निर्भर करता है, और भारत प्राचीन काल से अपनी विद्वता के लिए प्रसिद्ध रहा है, हमारे वेदो ने दुनिया को ज्ञान तकनिकी विज्ञान और अनुसंधान सिखाया है, वहीं सांस्कृतिक रूप से समृद्ध भी रहा है, इसी कारण इसे विष्व गुरू का दर्जा मिला हुआ है। हमारा भारतीय समाज बहुसांस्कृतिक लोकतांत्रिक समाज है, जिसमें शिक्षा के विभिन्न स्वरूप दिखाई देते है, वर्तमान वैज्ञानिक तकनीकी डिजिटल युग के शिक्षा प्रणाली में छात्रों में सृजनात्मकता, स्वप्रत्यय, चिंतन, तर्क, अभिवृत्ति, अभिरूचि क्षमता महत्वपूर्ण है। शिक्षा एक ऐसी प्रक्रिया है, जो मनुष्य की जन्मजात शक्तियों के स्वाभाविक और सामंजस्यपूर्ण विकास में योग देती है, उसे जीवन और नागरिकता के कर्तव्यों और दायित्वों के लिए तैयार करती है और उसके व्यवहार, विचार, दृष्टिकोण में ऐसा परिवर्तन करती है जो समाज, देश और विष्व के लिए हितकर होता है। 'प्लेटो' के अनुसार "शिक्षा से मेरा तात्पर्य उस प्रषिक्षण से है जो बालकों के सदगुण की मूल प्रवृत्ति के लिए उपयुक्त आदतों के निर्माण द्वारा प्रदान किया जाता है।" वर्तमान का युग विज्ञान एवं तकनीक का युग हैं। तकनीक का उपयोग जीवन के प्रत्येक क्षेत्र में बढ़ रहा है। मनुष्य के जीवन का ऐसा ही एक क्षेत्र शिक्षा है, जिसमें तकनीक, विज्ञान एवं इंटरनेट की पकड़ बढ़ती ही जा रही है। बीते कुछ समय में ऑनलाइन शिक्षा का विस्तार हुआ है। कोविड-19 महामारी के दौरान शायद ही कोई ऐसा शिक्षक एवं विद्यार्थी वर्ग रहा हो जो ऑनलाइन शिक्षा पर निर्भर ना रहा हो। भारत की नई शिक्षा नीति भी ऑनलाइन शिक्षा के विकास एवं विस्तार पर ध्यान केंद्रित करती है।

ऑनलाइन शिक्षा की कोई सटीक परिभाषा नहीं है। ऑनलाइन शिक्षा वह होती है जो इंटरनेट के माध्यम से एवं तकनीकी संसाधनों की सहायता से प्राप्त एवं प्रदान की जाती है। ऑनलाइन शिक्षा को ई-लर्निंग, डिजिटल शिक्षा आदि के नाम से भी जाना जाता है। ऑनलाइन शिक्षा का वर्णन डिजिटल तकनीक का उपयोग करके प्रदान की जाने वाली शिक्षाशास्त्र के किसी भी रूप में जाना जाता है। इस तरह के तरीकों में दृश्य, ग्राफिक्स, टेक्स्ट, एनिमेशन, वीडियो और ऑडियो शामिल होते है। इसके अलावा ऑनलाइन शिक्षाशास्त्र समूह में सीखने और विशिष्ट क्षेत्रों में प्रशिक्षकों की सहायता की सुविधा भी प्रदान कर सकता है। ऑनलाइन शिक्षण को शिक्षकों और विद्यार्थियों के बीच एक शिक्षण और सीखने की प्रक्रिया के रूप में परिभाषित किया गया है। जिसमें विभिन्न डिजिटल माध्यम शामिल हैं जैसे व्हाट्सएप, जूम ऐप, गूगल, क्लासरूम आदि। तकनीकी प्रगति और वैश्विक घटनाओं के कारण शिक्षा एक परिवर्तनकारी युग से गुजर रही है। इंटरनेट के आगमन और डिजिटल उपकरणों के प्रसार ने ऑनलाइन शिक्षा के एक नए युग की शुरूआत की है, जिसने पारंपरिक शैक्षणिक तरीकों को एक नया आयाम प्रदान किया है। इन बदलावों ने छात्रों को प्रगति और विकास के अभूतपूर्व अवसर प्रदान किए है। शिक्षा का विकास तकनीकी प्रगति और विश्वव्यापी घटनाओं से जुड़ा हुआ है। इंटरनेट के उदय और डिजिटल उपकरणों के व्यापक उपयोग ने ऑनलाइन शिक्षण में एक नए युग की शुरूआत की है। इसने न केवल पारंपरिक शैक्षिक प्रतिमानों की रूपरेखा को फिर से परिभाषित किया है, बल्कि शिक्षार्थियों को उन्नति और संवर्धन के लिए अद्वीतीय संभावनाएं भी प्रदान की हैं।

नई राष्ट्रीय शिक्षा नीति 2020 और ऑनलाइन शिक्षा -

भारत में तीन शिक्षा नीतियां लाई जा चुकी हैं। पहली शिक्षा नीति 1968, दूसरी शिक्षा नीति 1986 में जिसे 1992 में पुनः संशोधित किया गया और तीसरी शिक्षा नीति 34 वर्षो के बाद प्रधानमंत्री नरेन्द्र मोदी के कार्यकाल में 2020 में लाई गई है। नई शिक्षा नीति 2020, वर्तमान समय को ध्यान में रखते हुए निर्मित की गई हैं ताकि शिक्षा के द्वारा संपूर्ण राष्ट्र के विकास को बढ़ावा दिया जा सके। इनमें से ही एक बदलाव तकनीकी एवं वैज्ञानिक शिक्षा के विकास के साथ ही ऑनलाइन शिक्षा को भी शामिल किया गया है। जिससे शिक्षा का विस्तार दूर तक किया जा सके और शिक्षा से कोई वंचित ना रहे। ऑनलाइन शिक्षा को कोविड-19 महामारी के

दौरान एक विकल्प के रूप में प्रयोग में लाया गया था, परंतु बदलती हुई परिस्थितियों के साथ ही जरूरी है कि इस विकल्प को पूर्ण रूप से सक्षम बनाया जाए। नई शिक्षा नीति 2020 में ऑनलाइन शिक्षा के विस्तार के लिए कई पहलों की सिफारिशें की गई है। हाल ही के वर्षों में, ऑनलाइन शिक्षा के क्षेत्र में तेजी से और उल्लेखनीय विस्तार देखा गया है। इस उछाल को महत्वपूर्ण कारकों जैसे बढ़ी हुई पहुंच, लचीलेपन और निरंतर और आजीवन सीखने की बढ़ती आकांक्षा के लिए जिम्मेदार ठहराया जा सकता है। कोविड-19 महामारी के कारण हुई अभूतपूर्व वैश्विक उथल-पूथल के कारण इस विकास की गति काफी तेज हो गई है। निर्बाध शिक्षा सुनिश्चित करने की अनिवार्यता के जवाब में दुनिया भर के शैक्षणिक संस्थान तेजी से आभासी प्लेटफॉर्म की ओर बढ़ रहे हैं। इस अप्रत्याशित और चुनौतीपूर्ण परिस्थिति ने शिक्षकों और छात्रों दोनो को अपनी सीखने की क्षमता बढ़ाने के लिए ऑनलाइन शिक्षा को एक उपकरण के रूप में अपनाने के लिए मजबूर किया। इसने एक प्रेरणा के रूप में कार्य किया है तथा ऑनलाइन शिक्षण को अपनाने को बढ़ावा दिया और नवीन दृष्टिकोण और शैक्षिक प्रौद्योगिकियों के विकास का नेतृत्व किया। इन परिवर्तनों से आकार लेने वाले शैक्षिक परिदृश्य में पारंपरिक ज्ञान और अत्याधुनिक प्रगति का संगम देख सकते हैं। महामारी के प्रभाव ने डिजिटल सीखने की अव्यक्त क्षमता को उजागर किया, जिससे एक स्टॉपगैप उपाय से परे इसकी व्यवहार्यता साबित हुई। इसने शिक्षा को एक नए युग में धकेल दिया है, जो गतिशील अन्तरक्रियाशीलता, विविध पहुंच ओर एक शैक्षणिक प्रतिमान की विशेषता है जो भौतिक कक्षाओं की सीमाओं से परे तक फैला हुआ है। जैसे-जैसे हम परिवर्तन की धाराओं में आगे बढ़ रहे हैं, यह स्पष्ट है कि शिक्षा की यात्रा अब हमेशा के लिए ऑनलाइन सीखने की असीमित संभावनाओं के साथ जुड़ गई है, जो ज्ञान के प्रसार और अधिग्रहण के क्षितिज को नया आकार दे रही है।

भारत को डिजिटल रूप से सशक्त समाज और ज्ञान अर्थव्यवस्था में बदलने के डिजिटल इंडिया कार्यक्रम के दृष्टिकोण के साथ भारत में शिक्षा क्षेत्र में आने वाले वर्षों में व्यापक वृद्धि देखने को मिलेगी। प्रौद्योगिकी आधारित शिक्षा की पहुंच और सरलता से भारतीय शिक्षार्थियों के जीवन में सामाजिक-आर्थिक परिवर्तन लाएगी। ऑनलाइन शिक्षा व्यावसायिक पैमाने का एक महत्वपूर्ण आर्थिक पहलू है। इससे यह महत्वपूर्ण हो जाता हैं कि विद्यार्थी अपने अध्ययन को किसी भी समय और कहीं से भी आसानी से शिक्षा प्राप्त कर सकते हैं, जिससे उनके पास समय, श्रम और वित्त की बचत होती है। साथ ही शिक्षा प्रदाताओं को भी आर्थिक लाभ होता है क्योंकि वे इसके द्वारा अधिक से अधिक छात्रों तक पहुंच सकते हैं, जिससे शिक्षा प्रदाताओं को अधिक वित्तीय लाभ होता है। इसके आर्थिक और सामाजिक प्रभावों को समझकर, हमें इसे सुनिश्चित करना होगा कि वर्तमान युवा पीढ़ी इसका अधिक से अधिक लाभ प्राप्त कर सके ताकि छात्रों और समाज का भविष्य समृद्ध हो सके। इस लेख का उद्देश्य आईसीटी और डिजिटल शिक्षा के भविष्य के लाभों, जोखिमों और डिजिटल युग में नवीनतम तकनीकों को अपनाने की चुनौतियों और विशाल ऑनलाइन खुले पाठ्यक्रमों के बारे में मूल्यवान दृष्टिकोण प्रदान करना है। हमने इंटरनेट प्रौद्योगिकियों के आगमन के साथ शिक्षाविदों के भीतर बातचीत करने और उत्पन्न करने के तरीके में गहरा बदलाव देखा है। विश्व स्तर पर, डिजिटल क्रांति ने सूचना तक खुली पहुंच को बढ़ावा दिया। आज कक्षाओं में बहुत सारे आईसीटी संसाधन हैं, लगभग सभी शिक्षकों ने शिक्षार्थियों के लिए सूचना और सहयोगात्मक गतिविधियों तक पहुंच बढ़ाने के लिए डिजिटल तकनीक को शामिल करने में काफी प्रगति की है।

भारत एक युवा देश है और हमारे देश में युवाओं की संख्या ज्यादा है। आज का युवा तकनीक के साथ ज्यादा सहज हैं। ऐसे में इस समय ऑनलाइन शिक्षा पर जोर देने से शिक्षा के स्तर में वृद्धि तय की जा सकती है। अभी हाल में हमारे पास कितने उदाहरण हैं जिसमें ऑनलाइन प्लेटफॉर्म की वजह से विद्यार्थियों ने बड़ी-बड़ी परीक्षाएं पास की हैं। शिक्षा की पहुंच को अंतिम व्यक्ति तक सुनिश्चित करने में ऑनलाइन शिक्षा एक अहम योगदान दे सकती है। ऑनलाइन माध्यमों से शिक्षा की पहुचँ को अंतिम व्यक्ति तक सुनिश्चित किया जा सकता है। ऑनलाइन शिक्षा, शिक्षक एवं प्रतिभागी दोनों के कार्य को आसान बनाती है। मीलों दूर बैठा प्रतिभागी भी ऑनलाइन शिक्षा के माध्यम से कक्षा में भाग ले सकता है। अब विश्वविद्यालय स्तर पर बहुत-सी

संगोष्ठीयां ऑनलाइन की जाती हैं। स्कूल एवं विश्वविद्यालयों में प्रोजेक्ट विद्यार्थी द्वारा ऑनलाइन प्लेटफॉर्म की मदद से जमा करा दिए जाते हैं जैसे कि गूगल क्लासरूम आदि। ऑनलाइन शिक्षा दूरस्थ शिक्षा के विस्तार में योगदान देगी। इसके साथ ही ऑनलाइन शिक्षा में लचीलापन भी है। विद्यार्थी को जब समय मिले वह तब पढ़ सकता है क्योंकि ऑनलाइन वीडियो और ऑडियो सामग्री उसे उपलब्ध होगी जैसे कि ई- ज्ञानकोष, विडिओ आदि। ऑनलाइन शिक्षा के माध्यम से शुरू किए गए ज्यादातर कोर्स मुफ़्त है या बहुत ही निम्न फीस पर मुहैया कराए जा रहे हैं।

ऑनलाइन शिक्षा के सहजता से एवं तीव्र गति से विकास के लिए डिजिटल साक्षरता की कमी एक चुनौती है डिजिटल उपकरणों का इस्तेमाल करना इतना आसान कार्य नहीं है। आर्थिक रूप से कमजोर लोग शिक्षा के लिए डिजिटल उपकरणों तक पहुंच कैसे सुनिश्चित करे? डिजिटल उपकरणों तक पहुंच बनाना भी अपने आप में एक चुनौती है। लॉकडाउन के दौरान जब शिक्षा को ऑनलाइन कर दिया गया था, उस समय डिजिटल उपकरणों की कमी के कारण कितने ही बच्चों की पढ़ाई में बाधा पड़ी थी। डिजिटल इंफ्रास्ट्रक्चर की कमी के कारण भी ऑनलाइन शिक्षा हासिल करना एक चुनौती है। विभिन्नता से भरे इस देश में दूर-दराज के क्षेत्रों तक इंटरनेट की पहुंच सुनिश्चित करना सरकार के सामने चुनौती है। इसके साथ ही डिजिटल उपकरणों के संचालन और ऑनलाइन शिक्षा के लिए हर घर बिजली की पहुंच सुनिश्चित करना भी आवश्यक है। अब तक भारत में तीन चौथाई विद्यार्थी इंटरनेट की पहुंच से दूर हैं। इसके साथ ही भारत में ज्यादातर लोगों के घरों में बच्चों की पढ़ाई के लिए अलग स्थान नहीं होता है। शहरों में रहने वाले प्रवासी मजदूर तो कई बार संपूर्ण परिवार के साथ एक ही कमरे में रहते हैं। ऐसे में जगह की कमी के कारण ऑनलाइन शिक्षा ग्रहण करना मुश्किल कार्य है। ऑनलाइन शिक्षा में समाज के उस वर्ग के विद्यार्थी को शामिल करना मुश्किल कार्य है जिनकी जरूरत दूसरों से अलग है। ऑनलाइन शिक्षा का विद्यार्थी और शिक्षकों के स्वास्थ्य पर भी नकारात्मक प्रभाव है। लंबे समय डिजिटल उपकरणों के प्रयोग से दृष्टि, मस्तिष्क, सुनने की क्षमता आदि प्रभावित होती है। परंपरागत तरीके से शिक्षा ग्रहण करने के तरीके से ऑनलाइन शिक्षा की तरफ बढ़ना अपने आप में चुनौती है कई बार शिक्षक एवं विद्यार्थी बदलाव को स्वीकार नहीं कर पाते है।

निष्कर्षः-

जब हम ऑनलाइन शिक्षा की बात कर रहे हैं तो यह जानना भी आवश्यक है कि यह कोई नया विचार नहीं है। इसके पूर्व इग्नू ने पहली बार 2000 में दूरदर्शन चैनल पर ज्ञान दर्शन के नाम से अपना एक पोर्टल प्रारंभ किया था। इग्नू द्वारा पहले भी दूरस्थ शिक्षा के नाम से मॉड्यूल उपलब्ध कराया जाता रहा है, उससे संबंधित ई-लर्निंग, ऑडियो, वीडियो के द्वारा शिक्षा उपलब्ध कराई जा रही है। लेकिन तब ऑनलाइन उनके लिए था जो क्लास में नहीं जा सकते थे या कार्यरत थे। कोरोना के पहले यह सुविधा केवल उनके लिए बनाई गई थी, जिनकी पढ़ाई या तो छूट गई थी अथवा जो भौतिक रूप से पढ़ाई नहीं कर सकते थे। कोरोना के पहले ऑनलाइन शिक्षा आम आदमी की पहुंच से दूर था और साथ ही आम आदमी इसमें रुचि भी नहीं ले रहा था। लेकिन आपदा के समय लॉकडाउन में ऑनलाइन कुकिंग, ऑनलाइन गेम, ऑनलाइन बिलिंग, ऑनलाइन शिक्षा आदि में आम आदमी भी रुचि लेने लगे है। ऑनलाइन शिक्षा में नए युग की शुरुआत ने हमारे सीखने और सिखाने के तरीके में क्रांतिकारी बदलाव की शुरुआत की है। अपनी व्यापक पहुंच, लचीलेपन, इंटरैक्टिव सुविधाओं और कौशल विकास पर जोर के साथ, ऑनलाइन शिक्षा व्यक्तिगत और व्यावसायिक विकास के लिए एक शक्तिशाली उपकरण के रूप में उभरी है। जैसे-जैसे प्रौद्योगिकी आगे बढ़ रही है, शिक्षकों, शिक्षार्थियों और संस्थानों के लिए ऑनलाइन शिक्षा की पूरी क्षमता का सहयोगात्मक रूप से दोहन करना सर्वोपरि हो जाता है, जिससे यह सुनिश्चित हो कि यह आधुनिक शिक्षण अनुभवों की आधारशिला बनी रहे। संक्षेप में, यह कहा जा सकता है कि ऑनलाइन शिक्षा की पहुंच और समावेशिता ने एक आदर्श बदलाव को उत्प्रेरित किया है, जिससे सीखने को एक सशक्त और सर्वव्यापी यात्रा में बदल दिया गया है, जहां बाधाएं खत्म हो जाती हैं और आकांक्षाएं बिना किसी बाधा के पोषित होती हैं। वर्तमान में ऑनलाइन शिक्षा काफी प्रासंगिक माध्यम के रूप में

है, इससे त्वरित गति से सूचना आधारित ज्ञान सभी लोगों तक पहुँच रही है। ऑनलाइन शिक्षा के माध्यम से मोबाइल एवं इन्टरनेट की बढ़ती गति के साथ भारत में प्रत्येक बच्चे को शिक्षा के लिए एक नई किरण दिखाई दी है। आवश्यकता इस बात की है कि ऑनलाइन शिक्षा के मार्ग में आने वाली बाधाओं को दूर करने के लिए मजबूत कदम उठाए जाएँ। साथ ही समाज एवं सरकार के स्तर पर ऐसी नीतियां बनाई जाए ताकि समाज के सबसे निचले वर्ग जैसे मालिन बस्तियों तक को भो ऑनलाइन शिक्षा के माध्यम से गुणवतापूर्ण शिक्षा पहुँच सके।

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"अध्ययन अध्यापन में आधुनिक तकनीक का प्रयोग एवं उपयोगिता"

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संक्षेप - भारत जिसने पूरे विश्व को अपने ज्ञान के प्रकाश से आलोकित किया जिसने सम्पूर्ण विश्व को एक नई जानकारी का बोध हुआ है संसार का कोई भी ऐसा देश नहीं है जहाँ ज्ञान के प्रति प्रेम का इतने प्राचीन समय मैं आविर्भाव हुआ हो, जिसने इतना चिरस्थायी और शक्तिशाली प्रभाव डाला हो, आज तक शिक्षा के संबंध में भारतीयों की मुख्य धारणा यह रही है, कि "शिक्षा प्रकाश का वह स्त्रोत है जो जीवन के विभिन्न क्षेत्रों में हमारा सच्चा पथ प्रदर्शन करता है ।"

गूगल क्लास रूम माइक्रोसॉफ्ट और zoom जैसे ऑनलाइन प्लेटफ़ॉर्म के साथ छात्र अपने भौतिक इस स्थान की परवाह किए बिना परियोजनाओं पर सहयोग कर सकते हैं दस्तावेज़ साझा कर सकते हैं और एक दूसरे को और अपने शिक्षकों के साथ संवाद कर सकते हैं कि यह छात्रों को अधिक कुशलता से एक साथ काम करने विचार ,साझा करने और एक दूसरे से सीखने में सक्षम बनाता है ।

आधुनिक शिक्षण पद्धति एक विद्यार्थी केंद्रित और गतिविधि आधारित शिक्षण पद्धति है, जिसका उपयोग शिक्षार्थियों को पूरी तरह से शामिल करने के लिए किया जाता है यह दृष्टिकोण शिक्षार्थियों को पाठ्यक्रम योजना और शिक्षण के प्राथमिक कारण के रूप में पहचानता है ।

प्रस्तावनाः-

किसी व्यवसाय को शुरू करने के लिए हमें उस व्यवसाय से संबंधित आवश्यक ज्ञान अर्जित करना पड़ेगा और उस ज्ञान से अपने कौशल एवं अभिवृत्तियों की शिक्षा देना तकनीकी शिक्षा है जो शिक्षा विशेष व्यवहारिक ज्ञान और कौशल प्रदान करती है उसे तकनीकी शिक्षा के रूप में जाना जाता है यह छात्रों को कृषि ,कंप्यूटर, इंजीनियरिंग, चिकित्सा, ड्राइविंग आदि क्षेत्रों में कुशल बनाती है, आधुनिक तकनीक शिक्षा किसी देश के विकास के लिए महत्वपूर्ण भूमिका निभाती है निर्माण के हर क्षेत्र में तकनीशियनों की ज़रूरत होती है ।

तकनीकी शिक्षा एक विशिष्ट प्रकार की शिक्षा का रूप है जिनका व्यक्ति और समाज के साथ अभिन्न समन्वय हैं जो शिक्षा विशेष व्यावहारिक ज्ञान और कौशल प्रदान करती है, उसे तकनीकी शिक्षा के रूप में जाना जाता है ।

आधुनिक तकनीकी का प्रयोग एवं विकास :- वर्तमान समय में आधुनिक वैज्ञानिक खोजों ने जीवन के हर पहलू को नए आयाम से आगे बढ़ाया है जिसके कारण मानव दिन प्रतिदिन आगे अपनी तरक़्क़ी को सफल बनाने में सफलता हासिल कर चुका है ।

हम सभी जानते हैं कि आधुनिक तकनीक ने हमारे जीवन को सरल बना दिया है टी. वी . और लेज़र आदि जैसे कई उपकरणों का अविष्कार किया गया है जो कई मायनों में हमारी मदद करते हैं आधुनिक प्रौद्योगिकी के माध्यम से संचार सर्वेक्षण आदि आसान हो गया है यह आधुनिक तकनीकी इसके उपकरणों और उपयोगों से संबंधित है आधुनिक तकनीक केवल पुरानी तकनीक की उन्नति है आधुनिक जीवन में प्रौद्योगिकी का असर अपरिहार्य हैं अर्थात इसे मापा नहीं जा सकता ।

यह अविष्कार सीधे एक क्षेत्र में न होकर प्रत्येक क्षेत्र में हो रही हैं चाहे वह अभियांत्रिकी या शिक्षा हर क्षेत्र में नए नए चमत्कार देखने को मिल रहे हैं क्योंकि निरंतरता ही विकास की परिचायक है ।

तकनीकी ने मानव के हर पहलू हर पल हर एक स्थान पर अनुपम सेवाएँ प्रदान की है, और इसी क्रम में यह विज्ञान आज भारतीय शिक्षण संस्थाओं में भी शिक्षण प्रक्रिया के रूप में प्रवेश कर गया है जिसका प्रयोग करके अध्यापक अपने विषय वस्तु को सरल सहज बना सके ।

भारत में तकनीकी का विकास नहीं हुआ था तब हमारी शिक्षा व्यवस्था पेन ,कलम, दवात एवं स्याही काग़ज़ के इर्द गिर्द सिमट गई थी, किंतु क्रांति ने न केवल देश के आर्थिक बल्कि शैक्षिक क्षेत्र में क्रांति ला दी है, आज से पहले रोज़गार के लिए भी कार्य हस्तलिपि में भरकर आवेदन किए जाते थे, किन्तु वर्तमान समय में कंप्यूटर में ऑनलाइन माध्यम से भेजकर कार्य पूरा कर सकते हैं इस प्रकार रोज़गार प्रदान करने के लिए आयोजित होने वाली प्रतियोगी परीक्षाएं भी ऑनलाइन होने के कारण प्रतियोगी छात्रों का समय, यात्रा तथा अनावश्यक धन ख़र्च में बचत व सुरक्षा प्राप्त हुई है ।

वर्तमान समय में आज अध्ययन अध्यापन में आधुनिक तकनीकी शब्दों का प्रयोग व्यापक रूप में किया जा रहा है, वर्तमान युग तकनीकी का युग कहा जाता है, आधुनिक समय में तकनीकी का विकास बड़ी तेज़ी से हो रहा है, मानव उसका उपयोग सभी क्षेत्रों में कर रहा है हमारे सामान्य जीवन में जिस प्रकार विज्ञान और तकनीकी ज्ञान का उपयोग कम से कम रूप में किया जाता है आज जीवन के हर क्षेत्र मे हम तकनीकी का उपयोग कर रहे हैं आज हमारे पास नई नई तकनीक है जैसे रेडियो ,टी.वी. सी.डी . वीडियो, प्रोजेक्टर आदि उपकरणों का प्रयोग शिक्षण कार्य में होने लगा है ।

अध्ययन अध्यापन में आधुनिक तकनीकी का महत्व एवं उपयोगिता:-

आधुनिक तकनीकी का महत्व अधिक बढ़ गया है वह समय गया जब हम कपड़े बुनने के लिए हाथों के चरखे का उपयोग करते थे एक दूसरे का हालचाल पूछने के लिए हाथों से लिखने वाले लेटर पत्रों का उपयोग करते थे और उनके माध्यम से एक दूसरे का हालचाल मालूम कर पाते थे लेकिन आज विज्ञान और तकनीकी ने हमारी दिनचर्या को अधिक सुविधाजनक बना दिया है जैसे मोबाइल इंटरनेट हमें दूरसंचार की आवश्यकता पूरी करते हैं हम दूर रहने वाले रिश्तेदारों से आसानी से बातचीत कर सकते हैं और दूसरे देशों के साथ आसानी से व्यापार कर सकते हैं इंटरनेट के माध्यम से हम एक दूसरे से आमने सामने बैठकर इस एक दूसरे को देखकर आपस में बातचीत कर सकते हैं तथा ख़बरें भी आसानी से पहुँचाने की सुविधा देता है आधुनिक तकनीक के साथ साथ ज्ञान नैतिकता और संवेदनशीलता को भी ध्यान में रखना होगा क्योंकि सिर्फ़ तकनीक का उपयोग करने से हमारी समस्याएँ हल नहीं हो सकती है हमारे जो मानवीय मूल्य हैं उनके प्रति हमें समर्पित रहना होगा जो हमें एक समृद्ध सामान्य और विकसित समाज बनाने में मदद करेंगे तकनीकी उपकरणों के माध्यम से हम दो रास्तों संपर्क कर सकते हैं आपस में जुड़ सकते हैं जानकारी प्राप्त कर सकते हैं साथ ही तकनीकी पढ़ाई से हमें उन्नति की दिशा में आगे बढ़ने का अवसर प्रदान करेगी हम अपना करियर मज़बूत कर सकते हैं इसलिए अध्ययन अध्यापन में तकनीकी पढ़ाई आधुनिक युग में अत्यंत महत्वपूर्ण है ।

तकनीकी को एक प्रणाली या कला के रूप में परिभाषित किया जा सकता है, जिसका उपयोग मानवीय समस्याओं को हल करने कायो को सुविधाजनक बनाने और उत्पादन को सुगम और तेज़ बनाने के लिए किया जाता है तकनीकी एक माध्यम है जिसके द्वारा मानवों ने अपनी समस्याओं का समाधान ढूंढ निकाला है जिसके द्वारा हमने विज्ञान मशीनों कंप्यूटर इलेक्ट्रॉनिक इंटरनेट ऊर्जा उत्पादन में और अन्य क्षेत्रों में विकास किया है, कि तकनीकी हमारे जीवन को आसान और सुविधाजनक बनाती है तकनीकी का उचित उपयोग हमारे समाज के विकास में महत्वपूर्ण भूमिका निभाता है हमें इसे एक शक्ति के रूप में नहीं देखना चाहिए, बल्कि इसका सही और ज़िम्मेदारी पूर्ण उपयोग करना चाहिए ताकि हम सामाजिक मानवीय और पर्यावरणीय पहलुओं को संतुष्ट कर सके आजकल हम इंटरनेट के माध्यम से ख़रीदारी, वीडियो कॉल, सोशल मीडिया, बैंकिंग, ऑनलाइन शिक्षा और अन्य कार्यों को सरलता से कर सकते ,हैं आधुनिक तकनीकी हमारे

जीवन को अनगिनत सुविधाएँ प्रदान कर रही है हम इसे सही ढंग से उपयोग करके अपनी ज़िंदगी को और बेहतर बनाने का प्रयास करना चाहिए ।

अध्ययन अध्यापन में आधुनिक तकनीक की आवश्यकताः-

आज हम अपने सर्वांगीण भविष्य की ओर बढ़ रहे हैं और भारत भी विकास के इस दौर में बहुत आगे बढ़ चुका है और कई प्रकार की सुविधाएँ हमारे देश को मिल चुकी है अब हमारे देश की तकनीकी शिक्षा को बढ़ावा देने की आवश्यकता है जिस देश में तकनीकी शिक्षा को बढ़ावा दिया जाता है वह देश विकास की ओर बढ़ता है, तकनीकी शिक्षा के माध्यम से देश के युवाओं को प्रशिक्षण देकर उनको आगे बढ़ाया जाता है और जब देश के युवा आगे बढ़ेंगे तब हमारे देश का विकास होगा हमें सभी प्रकार के व्यवसायों में योग्य और प्रशिक्षित कार्य करने वालों की आवश्यकता है सरकार यह चाहती है कि हमारे देश में तकनीकी शिक्षा का स्तर बढ़ाने की आवश्यकता है ।

निष्कर्षः-

किसी भी देश व समाज के विकास के लिए आधुनिक तकनीकी उपकरणों के ज्ञान की आवश्यकता होती है, आज के वैज्ञानिक युग की दौड़ में अपनी समस्याओं को कम करने के लिए शैक्षिक तकनीकी उपकरणों की सामान्य शिक्षा विद्यार्थियों के लिए अति आवश्यक हो गई है, शिक्षक राष्ट्र निर्माण एवं व्यक्तित्व का विकास करने के लिए हर संभव प्रयास प्रयास करता है, अतः शैक्षिक तकनीकी उपकरण जैसे रेडियो दूरदर्शन कंप्यूटर इंटरनेट वीडियो टेप रिकार्डर सी.डी .आदि माध्यमों का ज्ञान अध्यापक के लिए अति आवश्यक है, साथ ही साथ हम सभी अच्छी प्रकार जानते हैं कि तकनीकी एक जटिल विषय है, जिसमें कठिनाई व जटिलता तो है जिससे बार बार सीखने से वह जटिलता ख़त्म हो जाएँगी और नए नए उपकरणों से विद्यार्थियों को पढ़ाने सिखाने में आसानी हो जाएगी, अध्ययन अध्यापन में आधुनिक तकनीकी का प्रयोग एवं उपयोगिता एक ऐसा विषय है जो विद्यार्थी जीवन में मानवीय मूल्यों को आत्मसात करने और भविष्य जीवन संघर्ष में शांतिपूर्ण साधन का उपयोग करते हुए सफल होने का मार्ग प्रदर्शित करता है, साथ ही जिज्ञासा और प्रश्नों के उत्तर का अनुकरण करता है यदि आज अध्ययन अध्यापन में आधुनिक तकनीक के प्रयोग की उपयोगिता की बात की जाए तो जितने भी समृद्ध देश है वे अपनी भाषा शोध अध्ययन की क्षमता कार्य करने की शैली आदि में नवीन तरीक़ों का उपयोग करके काफ़ी आगे बढ़ गए हैं, आधुनिक तकनीक का प्रयोग कर छात्रों में उच्च मानसिक योग्यताओं व क्षमताओं विकास किया जा सकता है, उसमें सृजनात्मकता, मौलिकता को विकसित किया जा सकता है, वर्तमान युग में प्रौद्योगिकी ने शिक्षा के क्षेत्र में क्रांति ला दी गई है वास्तव में शिक्षा के क्षेत्र में आधुनिक तकनीकी के प्रयोग के माध्यम से शिक्षकों के लिए ज्ञान प्रदान करना और विद्यार्थियों के लिए इसे ग्रहण करना अत्यंत आसान हो गया है ।

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BLENDED LEARNING ADAPTATION AND IMPLEMENTATION IN HIGHER EDUCATION: A COMPREHENSIVE REVIEW

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Abstract: Blended learning, characterized by the integration of traditional face-to-face instruction with online learning components, has gained significant attention in higher education for its potential to enhance student engagement, flexibility, and learning outcomes. This research paper provides a comprehensive review of the adaptation and implementation of blended learning in higher education settings. Drawing upon existing literature, it examines the benefits, challenges, best practices, and future directions of blended learning in the context of higher education institutions.
Key Words: Blended Learning, Skills, Higher Education

1. INTRODUCTION:

Blended learning has emerged as a prominent instructional approach in higher education, offering a flexible and dynamic learning environment that combines the strengths of traditional classroom instruction with online learning resources. This section introduces the concept of blended learning and outlines the objectives of the research paper.

2. DEFINITION AND MODELS OF BLENDED LEARNING:

This section provides an overview of blended learning, defining its key characteristics and highlighting different models and approaches, including the flipped classroom, hybrid courses, and fully online courses with periodic face-to-face meetings. By understanding the diverse models of blended learning, institutions can effectively design and implement blended learning initiatives that align with their educational objectives and student needs.

3. BENEFITS OF BLENDED LEARNING:

Blended learning offers numerous benefits to both educators and students. This section explores the advantages of blended learning, including increased flexibility, accessibility, personalized learning experiences, enhanced student engagement, improved learning outcomes, and opportunities for collaborative learning and active participation.

4. CHALLENGES AND BARRIERS:

Despite its potential benefits, blended learning implementation presents several challenges and barriers. This section examines common challenges such as faculty resistance, technological constraints, student readiness, time constraints, and the need for effective course design and instructional support. Understanding these challenges is essential for developing strategies to address them and ensure the successful implementation of blended learning initiatives.

5. BEST PRACTICES AND STRATEGIES:

Successful implementation of blended learning requires careful planning, design, and implementation. This section explores best practices and strategies for effective blended learning adaptation, including faculty development programs, learner support services, active learning techniques, assessment strategies, and the integration of technology into teaching and learning practices.

6. CASE STUDIES AND EXAMPLES:

This section presents case studies and examples of blended learning implementation in higher education institutions. Drawing upon real-world examples, it highlights successful initiatives, innovative approaches, and lessons learned from the implementation of blended learning in various disciplinary contexts.

7. FUTURE DIRECTIONS AND RECOMMENDATIONS:

Finally, this section offers insights into future directions and recommendations for advancing blended learning in higher education. It discusses emerging trends, technologies, and pedagogical approaches, as well as the importance of institutional support, faculty training, and ongoing evaluation and assessment of blended learning initiatives.

8. CONCLUSION:

In conclusion, blended learning has the potential to transform teaching and learning in higher education by providing a flexible, student-centered, and technology-enhanced learning environment. By understanding the benefits, challenges, and best practices of blended learning adaptation and implementation, institutions can harness its full potential to improve educational outcomes and prepare students for success in the digital age.

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परिचय -:

एक सशक्त राष्ट्र के लिए शिक्षा एक महत्वपूर्ण उपकरण है जो व्यक्ति के व्यक्ति के विकास के साथ-साथ समाज एवं राष्ट्र के निर्माण करने में भी अपना अहम योगदान देती है,शिक्षा समाज के प्रत्येक नागरिक के सर्वांगीण विकास हेतु एक महत्वपूर्ण साधन है। विश्व में उन्ही देशों ने तीव्र उन्नति की है, जिसने शिक्षा पर विशेष ध्यान दिया है, विशेषकर तकनीकी शिक्षा पर। भारत में नालंदा एवं तक्षशिला जैसे शैक्षणिक संस्थान प्रारंभ से ही शिक्षा के केंद्र रहे हैं जिसने दुनिया में शिक्षा के क्षेत्र में अपनी अविस्मरणीय छाप छोड़ी है। विदेशी आक्रमण के द्वारा इन संस्थाओं को नष्ट की जाने से भारत देश में शिक्षा के स्तर में गिरावट हुई, जिसके नकारात्मक प्रभाव देश को झेलने पड़े। वर्तमान में तकनीकी शिक्षा की बात करें तो भारत विकसित राष्ट्रों से अभी पीछे है। तकनीकी शिक्षा के क्षेत्र में भारतीय शिक्षा प्रणाली ने दो दशकों से तीव्र गति से विस्तार किया है। वर्तमान परिदृश्य में गुणवत्तापूर्ण शिक्षा तकनीकी शिक्षा के रूप में एक बेहतर विकल्प है। राष्ट्रीय शिक्षा नीति 2020 का मुख्य ध्येय भी तकनीक शिक्षा पर ज्यादा है, जिससे छात्रों का सर्वाधिक विकास हो सके। भारत की भौगोलिक भिन्नता के कारण जनजाति क्षेत्र शिक्षा से वंचित रह गए हैं, जनजाति क्षेत्र के अधिकतर छात्र आधुनिक तकनीको से अनभिज्ञ रहते हैं। तकनीकी शिक्षा के उपयोग से इन छात्रों के ज्ञान में वृद्धि होने के साथ-साथ रोजगार के अवसर भी उपलब्ध हो सकेंगे, जिससे युवा बेरोजगारी को कुछ हद तक दूर किया जा सकता है।

मध्य प्रदेश जनजाति बाहुल्य राज होने के साथ शैक्षणिक रूप से भी पिछड़ा हुआ है क्योंकि अन्य समुदाय की तुलना में जनजाति समुदाय का शैक्षणिक स्तर काफी निम्न है इसलिए जनजाति समाज का विकास आवश्यक है। प्रदेश में कुल जनसंख्या का 21.09 प्रतिशत जनजातीय समाज है, जो की एक बहुत बड़ा भाग है, इतनी बड़ी आबादी को गुणवत्तापूर्ण एवं तकनीकी शिक्षा प्रदान करें बगैर इनका विकास करना मुश्किल है, इसलिए जनजाति छात्रों को गुणवत्तापूर्ण एवं तकनीकी शिक्षा प्रदान करना अतिआवश्यक है। वर्तमान परिदृश्य को देखते हुए समाज के सभी वर्गों को साथ लेकर चलना होगा तभी यथासंभव विकास हो पाएगा।

गुणवत्तापूर्ण शिक्षा-:

ऐसी शिक्षा जिसमें एक विद्यार्थी का संपूर्ण विकास हो अर्थात ऐसी शिक्षा जिसमें एक छात्रा को एक विषय में न बांधा जाए बल्कि उसके संपूर्ण व्यक्तित्व का विकास हो सके। शिक्षा के माध्यम से उसमें ऐसी योग्यता का विकास हो जिससे वह वर्तमान परिप्रेक्ष्य में अपने आप को स्थापित करने की योग्यता प्राप्त कर सके, समय के साथ एक छात्र आत्मविश्वास के साथ आने वाली चुनौतियों का सामना करने के लिए तैयार हो, ऐसी शिक्षा गुणवत्तापूर्ण शिक्षा कहलाती है।

तकनीकी शिक्षा -:

तकनीकी शिक्षा औद्योगिक प्रशिक्षण प्रदान करने और विशिष्ट उद्देश्यों के लिए ज्ञान प्रदान करने पर केंद्रित है जो किसी के करियर को बनाने या सुधारने में मदद करती है । यह क्षेत्र बुनियादी बातों को समझने में मदद करता है कि चीजें कैसे काम करती हैं और उन्हें जमीनी स्तर से कैसे डिजाइन/निर्मित किया जा सकता है। तकनीकी शिक्षा प्रणाली के अंतर्गत अभियांत्रिकी, प्रोधोगिक, प्रबंधन, नगर नियोजन, होटल मैनेजमेंट, शिल्प प्रकार के विषयों ऊतक नीति शिक्षा में शामिल किया जाता है।

जनजाति और तकनीकी शिक्षा -:

लेकिन चिंता का विषय यह है कि देश की दुरुस्त जनजाति क्षेत्र में परंपरागत शिक्षा के अलावा तकनीकी शिक्षा पर विशेष महत्व नहीं दिया गया आज भी देश में जनजाति क्षेत्र में अधिकतर कॉलेजों और विश्वविद्यालय में तकनीकी भारत देश में आदिवासी समुदाय की जनसंख्या लगभग 17 राज्य में निवास करती

है। कुल आबादी में इनका हिस्सा 8.5% है। देश में जनजाति समुदाय की अपनी एक भिन्न विरासत एवं विशेष संस्कृति रही है जो आज भी विद्यमान है लेकिन वर्तमान संदर्भ में यह समुदाय विकास की मुख्य धारा से काफी बढ़ गया है। शिक्षा, जीवोकोपार्जन के स्रोत और उद्यमिता से दूर रही इन जनजातियों का मुख्य धारा से कटे रहना अब आखरता है। वर्तमान युग में समय अनुसार परंपरागत शिक्षा के स्थान पर तकनीकी एवं कौशल शिक्षा से जुड़ना न केवल प्रासंगिक हो गया है बल्कि अत्यावश्यक भी। जनजाति छात्रों के विकास की कल्पना तकनीकी शिक्षा को केंद्र में रखकर ही की जा सकती है। तकनीकी शिक्षा जीविकोपार्जन का मूल आधार है परंपरागत शिक्षा के स्थान पर तकनीकी शिक्षा की मांग वर्तमान समय में अधिक तीव्र गति से बढ़ रही है। ज्ञान की विविधता के साथ जीविका आधारित शिक्षा के जरिए भविष्य को सुरक्षित रखना है तो तकनीकी शिक्षा के मूल मंत्र को समझना होगा। समाज के सभी वर्गों विशेष कर वंचित या जनजातियों के लिए रोजगारपरक शिक्षा पर अधिक जोर दिया जाना ताकि इसके माध्यम से एक सशक्त एवं स्वावलंबी जनजाति पीढ़ी अपने पैरों पर खड़ी हो सके और विकास की मुख्य धारा में शामिल हो सके।शिक्षा जैसे किसी ऐच्छिक या अनिवार्य पाठ्यक्रम की विधिवत व्यवस्था नहीं है। तकनीकी शिक्षा परंपरागत शिक्षा से कई महीनो में भिन्न है। इसमें ज्ञान और कौशल का व्यावहारिक चुनौतियों और अर्थव्यवस्था की कार्य स्थितियों के बीच गहरा संबंध है। इस प्रकार की शिक्षा में ज्ञान और कौशल अभिवृत्ति का एक एकीकृत रूप समाहित होता है। तेजी से बदलती कामकाजी दुनिया में जरूरी तकनीकी शिक्षा के माध्यम से जनजातियों को न केवल कौशल बल्कि सैद्धांतिक ज्ञान, अभिवृत्ति एवं मानसिकता के साथ किसी पैसे के लिए जरूरी तकनीकी कौशल भी दिया जा सकता है।

देश में जनजाति युवा बेरोजगार की बड़ी संख्या है, जिनमें से ज्यादातर केवल बुनियादी शिक्षा के भरोसे अपने भविष्य को संवारने की दिवास्वप्न में है। उनके पास वैकल्पिक शिक्षा का कोई विकल्प नहीं है। और अगर अवसर भी उपलब्ध हो जाए तो संसाधन की भारी कमी बाधा बन जाती है। ऐसे में विशाल जनजाति आबादी को केवल परंपरागत शिक्षा के जरिए रोजगार मुहैया कराना दिवास्वप्न ही है। हालांकि अतीत में तकनीकी शिक्षा संबंधी सरकारी प्रयास किए गए हैं लेकिन उनके क्रियान्वयन में काफी अड़चनों का सामना करना पड़ा है।तकनीकी शिक्षा को बढ़ावा देने के लिए कौशल विश्लेषण, स्थानीय अवसरों का पता लगाना, सभी शैक्षिक संस्थानों के साथ तकनीकी शिक्षा एकीकरण के लिए वित्तीय सहयोग, बुनियादी संरचना एवं व्यवसायिक शिक्षा को प्रभावी ढंग से लागू करने के लिए लोगों की भर्ती, तैयारी और सहयोग के लिए पर्याप्त निवेश, प्रशिक्षुओं को प्रोत्साहित करने जैसे कदम उठाने की जरूरत है। इसकी अतिरिक्त सभी शैक्षिक संस्थानों द्वारा पाठ्यक्रम में 25 फ़ीसदी तकनीकी शिक्षा को शामिल करना इस दिशा में एक अहम कड़ी साबित हो सकती है। इससे बहुत संभव है छात्रों के लिए र खुलेंगे। छात्रों को आत्मनिर्भर और स्वावलंबी बनाने की दिशा में बहुत कुछ किया जाना अभी शेष है|

इक्कीसवी सदी का भारत और शिक्षा : एक परिदृश्य

इक्कीसवी सदी विश्व स्तर पर बुनियादी परिवर्तन लाने वाली है। इससे पूंजी, शक्ति तथा वर्चस्व की परिभाषा बदल जाएगी। कल का समाज ज्ञान का समाज होगा। आज मानव समाज शिक्षा को एक अपरिहार्य संपदा के रूप में देख रहा है। किसी भी व्यक्ति, समाज अथवा राष्ट्र की शक्ति का निर्धारण उसकी ज्ञान की पूंजी के आधार पर होगा। कल का युद्ध, तोप, टैंक या मिसाइल से नहीं बल्कि तकनीकी और ज्ञान से लड़े जाएंगे। इसलिए ज्ञान और सूचना विश्व की सर्वोत्तम पूंजी है।

आज भारत को वैश्विक पटेल पर मजबूती से खड़ा होना है तो शिक्षा को कुछ विशिष्ट तबको या समाज के खास हिस्से तक सीमित रखने विकसित भारत की कल्पना नहीं कर सकते। शिक्षा को समाज के प्रत्येक वर्ग तक समान रूप से पहुंचना आवश्यक है। इसलिए इक्कीसवी सदी के लिए व्यापक शिक्षा की मांग की जा रही है। सबके लिए शिक्षा तथा आजीवन शिक्षा की अवधारणा मूल बिंदु बनकर उभरी है। शिक्षा व्यवस्था का मूल उद्देश्य ऐसे मनुष्य का सृजन करना है जो नए काम को करने में सक्षम हो, साथ ही ऐसे युवाओं का सृजन करना जो रचना, अनुसन्धान और अविष्कार कर सके, जिसका मस्तिष्क समीक्षा तथा परीक्षण करने में दक्ष हो, जो दूसरों के विचारों को तर्क के जरिए परखने में समर्थ हो।

जो समाज अपने इतिहास से नहीं सिखाता उसे निंदित होना पड़ता है। आज भारत अपने इतिहास से सीखने के प्रति उतना तत्पर नहीं दीखता जितने एशिया के कुछ छोटे-छोटे देश जैसे थाईलैंड, इंडोनेशिया,मलेशिया सिंगापुर,कोरिया दिखाई पड़ते हैं जो विकसित राष्ट्र के साथ होड़ करते दिखाई दे रहे हैं। भारत आज भी पूरे देश को बुनियादी शिक्षा उपलब्ध कराने में पीछे है। आजादी के 75 वर्ष बाद भी देश की

एक बहुत बड़ी आबादी निरीक्षण है। आजादी के बाद देश में 1951 में साक्षरता दर 16.7 प्रतिशत थी जो 2011 में बढ़कर 73% तक पहुंची है। 2011 की जनगणना के अनुसार शहर और गांव के मध्य साक्षरता में 16% का अंतर बना हुआ है। भारत जैसे विशाल जनसंख्या वाले देश के संदर्भ में यह भयानक अंतर है। अगर जिसमें हम जनजाति समुदाय की बात करें तो बहुत बड़े हिस्से की आबादी शिक्षा तक पहुंच नहीं पाई है। आज भी लगभग 45% आदिवासी समाज निरक्षरता के अंधकार में जीने के लिए अभिशप्त है। दूसरी तरफ शैक्षणिक दृष्टि से संपन्न व्यक्ति अपनी शिक्षा की सार्थकता को नौकरी पाने तक के नज़रिये से देखता है। इस कारण अनुभव आधारित विकास की प्रक्रिया भी अवरुद्ध हो रही है।देशज ज्ञान के तीव्र विकास के लिए ज्ञान एवं तकनीकी का व्यापक प्रयोग होना जरूरी है। हालांकि भारत ने पिछले दो दशकों से शिक्षा को तकनीकी के साथ जोड़ने का अथक प्रयास किया है और सरकार के द्वारा भी तकनीकी शिक्षा आधारित कई योजनाओ की शुरुआत की है जिससे छात्र तकनीकी शिक्षा प्राप्त कर देश के विकास में अपना योगदान देश सकें। इसके अलावा तकनीकी शिक्षा को मूल रूप देने के लिए केंद्र सरकार ने राष्ट्रीय शिक्षा नीति 2020 की शुरुआत की है जो छात्रों को तकनीकी ज्ञान को बढ़ाने में कारगर होने के साथ विभिन्न क्षेत्रो में रोजगार के अवसर सुलभ कराएगी।

संबंधित साहित्य का अध्ययन-:

डॉ. कछावा, प्रीति (2020) ने अपने शोध पत्र नई शिक्षा नीति 2020 नई शिक्षा नीति 2020 में उच्चतर शिक्षा में समावेशी एवं समतामूलक शिक्षा प्रदान करने के लिए सरकार द्वारा उठाए जाने वाले महत्वपूर्ण पहलू अपनाये जाएंगे जिससे सामाजिक व आर्थिक रूप से वंचित वर्ग के विद्यार्थियों के लिए समुचित निधि एवं स्पष्ट लक्ष्यों का निर्धारण उच्च शिक्षा में जेंडर संतुलन को बढ़ावा देना, विकासोन्मुखी जिलों में उच्च शिक्षा संस्थानों का निर्माण स्थानीय भाषाओं में शिक्षण छात्रवृत्ति के अवसर, बेहतर भागीदारी एवं सीखने के परिणामों के लिए प्रौद्योगिकी का निर्माण एवं विकास, उच्च शिक्षा में उच्च शिक्षण संस्थान द्वारा भी शिक्षा को समावेशी एवं समतामूलक बनाने के लिए नए कदम उठाए जाएंगे, जैसे -उच्चतर शिक्षा कार्यक्रमों को रोजगार पर बनाना, छात्रवृत्ति के अवसर उपलब्ध कराना आदि।

डॉ. मावी, प्रेमलता (2022) मैं अपने शोध पत्र "अनुसूचित जनजाति के युवाओं के लिए बढ़ते रोजगार के अवसर (राष्ट्रीय शिक्षा नीति 2020) के परिपेक्ष में यह बताया कि अनुसूचित युवाओं के लिए जो शिक्षा लंबे समय से चली आ रही है उसमें परिवर्तन करने की आवश्यकता थी, शिक्षा की गुणवत्ता में कमी जिसके कारण रोजगार के अवसरों में लगातार कमी आती रही है। देश के समक्ष सबसे बड़ी समस्या शिक्षित युवाओं को रोजगार प्रदान करने की है। गुणवत्तापूर्ण शिक्षा के माध्यम से जनजाति युवाओं को स्वावलंबी में बनाया जा सकता है।

अध्ययन विधि-:

प्रस्तुत शोध में प्राथमिक समूह का प्रयोग किया गया है, जिसके अंतर्गत इंदौर जिले की महूँ तहसील से 50 एसे उत्तरदाताओं को जो उच्च शिक्षा प्राप्त कर चुके हैं या वर्तमान में कर रहे हैं का चयन दैव निदर्शन की उद्देश्यपूर्ण विधि के आधार पर किया गया है।

इन उत्तरदाताओं में गुणवत्तापूर्ण एवं तकनीकी शिक्षा के माध्यम से जनजाति समुदाय का विकास होगा। इस आधार पर अध्ययन कर प्राथमिक समंको का विश्लेषण किया गया है।

जनजाति छात्रों के विकास में गुणवत्तापूर्ण शिक्षा की भूमिका के अध्ययन से संबंधित विवरण

क्र.	विवरण	आवृत्ति	प्रतिशत
1	जनजाति छात्रों में तकनीकी शिक्षा का अभाव है	13	26
2	जनजाति समुदाय का एक बड़ा वर्ग तकनीकी शिक्षा से वंचित है	14	28
3	तकनीकी शिक्षा व गुणवत्तापूर्ण शिक्षा का साथ-साथ समावेश होना चाहिए	16	32
4	जनजाति छात्रों में गुणवत्तापूर्ण शिक्षा की कमी है	07	14
	कुल योग	50	100

उपरोक्त तालिका से स्पस्ट होता है कि 50 उत्तरदाताओं में से 26 प्रतिशत उत्तरदाताओं का कहना है की जनजाति छात्रों में तकनीकी शिक्षा का अभाव है तथा 28% उत्तरदाताओं का कहना है की जनजाति समुदाय का

एक बड़ा वर्ग तकनीकी शिक्षा से वंचित रह गया है वही 32% उत्तरदाताओं ने कहा कि तकनीकी शिक्षा व गुणवत्तापूर्ण शिक्षा साथ-साथ देना चाहिए इसका प्रतिशत सर्वाधिक है। 7% उत्तरदाताओं का कहना है की जनजाति छात्रों में गुणवत्तापूर्ण शिक्षा की कमी है जिसका प्रतिशत सबसे कम है।

तकनीकी शिक्षा का जनजाति छात्रों पर प्रभाव के अध्ययन का विवरण

क्र.	विवरण	आवृत्ति	प्रतिशत
1	तकनीकी शिक्षा प्राप्त करने से रोजगार की अधिक संभावना हुई है|	14	28
2	तकनीकी शिक्षा द्वारा जनजाति छात्रों के सामाजिक स्तर में परिवर्तन हुआ	16	32
3	तकनीकी प्रगति से जनजाति छात्रों में वर्ग उत्पन्न हुए|	08	16
4	जनजाति छात्र तेजी से आधुनिकता से प्रभावित हो रहे हैं|	12	24

उपरोक्त तालिका से स्पष्ट होता है कि 28% उत्तरदाताओं द्वारा कहा गया कि तकनीकी शिक्षा प्राप्त करने वाले छात्रों के लिए रोजगार के अवसर की संभावना अधिक होती है तथा 32% उत्तरदाताओं का कहना है कि तकनीकी शिक्षा द्वारा जनजाति छात्रों के सामाजिक स्तर में परिवर्तन आया ऐसा कहने वाले उत्तरदाताओं का प्रतिशत सर्वाधिक है, और 16% उत्तरदाताओं कहना है कि तकनीकी शिक्षा द्वारा जनजाति छात्रों में वर्ग स्थापित हो गया है ऐसा कहने वाले उत्तरदाताओं की संख्या सबसे कम है जिससे यह ज्ञात होता है कि तकनीकी प्रगति से छात्रों में वर्ष संघर्ष की संभावना वर्तमान में नहीं है। 24% उत्तरदाता ऐसे हैं जिनका कहना है की जनजाति छात्र तेजी से आधुनिकता से प्रभावित हो रहे हैं क्योंकि आधुनिकता के साथ हमें परंपरागत समाज को भी संजोये रखने की आवश्यकता है।

निष्कर्षत-:

निष्कर्षतः हम यह कह सकते हैं कि वर्तमान परिप्रेक्ष में तकनीकी शिक्षा से देश के विकास को गति प्रदान की जा सकती है और नई-नई वैज्ञानिक खोज से देश को विकसित देशों की श्रेणी में स्थापित किया जा सकता है

जनजाति समुदाय के छात्रों में तकनीकी शिक्षा की जो कमी देखने को मिलती है वह तकनीकी शिक्षा के माध्यम से दूर होगीऔर साथ ही जनजाति छात्रों के विकास के लिए गुणवत्तापूर्ण शिक्षा एक महत्वपूर्ण आयाम साबित होने से जनजाति छात्रों के लिए रोजगार के नए अवसर भी सुलभ हो सकेंगे।

समस्या-:

1. तेजी से बढ़ते युग में हम विकसित देशों से तकनीक शिक्षा में पिछड़े हुए हैं|
2. जनजाति छात्रों में तकनीक शिक्षा का भाव देखने को मिला है|

सुझाव -:

1. युवाओं के बेहतर भविष्य को देखते हुए गुणवत्तापूर्ण शिक्षा व तकनीकी शिक्षा दोनों का साथ साथ समावेश करने की आवश्यकता है जिससे छात्रों को एक बेहतर शिक्षा प्राप्त गोगी|
2. तकनीकी शिक्षा को किसी विशेष संख्याएं में न बाटते हुए सभी संकायों के लिए सुलभ होना चाहिए ताकि सभी को तकनीकी शिक्षा का बुनियादी ज्ञान प्राप्त हो सके।
3. जनजाति क्षेत्र में तकनीकी महाविद्यालय और विश्वविद्यालय खुलना चाहिए ताकि वह अपने स्थानीय स्तर पर तकनीकी शिक्षा प्राप्त कर सकें।
4. स्थानीय स्तर पर तकनीकी प्रशिक्षण प्रदान किए जाएं इससे विभिन्न क्षेत्रों में रोजगार के अवसर सुलहब होंगे।

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"शिक्षा में सूचना एवं संचार प्रौद्योगिकी का महत्व"

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सारांश – सूचना एवं संचार प्रौद्योगिकी (आईसीटी) वर्तमान में मानव जीवन के हर पहलू को प्रभावित कर रही हैं। वे कार्यस्थलों, व्यवसाय, शिक्षा और मनोरंजन में महत्वपूर्ण भूमिका निभा रही है । इसके अलावा, कई लोग आईसीटी को परिवर्तन के उत्प्रेरक के रूप में पहचानते हैं ये कामकाजी परिस्थितियों में बदलाव, सूचनाओं के आदान–प्रदान करने, शिक्षण विधियों, सीखने के दृष्टिकोण, वैज्ञानिक अनुसंधान और सूचना एवं संचार प्रौद्योगिकियों तक पहुंच में महत्वपूर्ण बदलाव कर रही है। इस डिजिटल युग में, छात्रों को 21वीं सदी के आवश्यक कौशल सीखने और लागू करने के अवसर देने के लिए कक्षा में आईसीटी का उपयोग महत्वपूर्ण है। आईसीटी शिक्षण और सीखने में सुधार करता है, और शिक्षकों के लिए शैक्षणिक वातावरण को बढ़ाता है। आईसीटी एक शिक्षक को अपने शिक्षण को आर्कषक ढंग से प्रस्तुत करने और शैक्षिक कार्यक्रमों के किसी भी स्तर पर शिक्षार्थियों के लिए सीखने में सक्षम बनाने में मदद करता है। आज भारत में शिक्षण प्रशिक्षण कार्यक्रम आईसीटी के माध्यम से उपयोगी एवं आकर्षक बन रहे हैं। इंटरनेट और इंटरएक्टिव मल्टीमीडिया द्वारा सूचना और संचार प्रौद्योगिकी (आईसीटी) स्पष्ट रूप से भविष्य की शिक्षा के लिए एक महत्वपूर्ण केन्द्र है और इसे औपचारिक शिक्षण और सीखने में प्रभावी ढंग से, विशेष रूप से एक शिक्षक शिक्षा संस्थान में एकीकृत करने की आवश्यकता है।
मुख्य शब्द– सूचना एवं संचार प्रौद्योगिकी, वैज्ञानिक अनुसंधान, डिजिटल युग।

प्रस्तावना:–

आईसीटी का मतलब सूचना और संचार प्रौद्योगिकी है। यह उन प्रौद्योगिकियों को संदर्भित करता है जो दूरसंचार के माध्यम से सूचना तक पहुंच प्रदान करती हैं। यह सूचना प्रौद्योगिकी (आईटी) के समान है, लेकिन मुख्य रूप से संचार प्रौद्योगिकियों पर केंद्रित है। इसमें इंटरनेट, वायरलेस नेटवर्क, सेल फोन और अन्य संचार माध्यम शामिल हैं। आजकल, शिक्षक प्रशिक्षण कार्यक्रमों में आईसीटी का उपयोग करके और प्रभावी ढंग से पढ़ाने के लिए शिक्षकों की गुणवत्ता में सुधार करने के अधिक अवसर हैं। यूनेस्को के अनुसार, आईसीटी एक वैज्ञानिक, तकनीकी और इंजीनियरिंग अनुशासन और प्रबंधन तकनीक है जिसका उपयोग सूचना, इसके अनुप्रयोग और सामाजिक, आर्थिक और सांस्कृतिक मामलों के साथ जुड़ाव में किया जाता है।

शिक्षक हमारे समाज में शैक्षिक क्षेत्र का मुख्य अंग होते हैं। वे हर क्षेत्र में समाज के सुधार के लिए महत्वपूर्ण भूमिका निभाते हैं। कुशल शिक्षक रचनात्मक छात्रों को समाज के लिए अच्छे सामाजिक कार्यकर्ता, राजनीतिज्ञ, कवि, दार्शनिक आदि के रूप में विकसित कर सकते हैं। शिक्षक विद्यार्थियों के साथ मैत्रीपूर्ण भूमिका निभा सकते हैं।

प्रौद्योगिकी में तेजी से विकास ने हमारे जीवन जीने के तरीके के साथ–साथ समाज की मांगों में भी रचनात्मक परिवर्तन किए हैं। कार्यस्थल और रोजमर्रा की जिंदगी पर नई प्रौद्योगिकियों के प्रभाव को पहचानते हुए, आज के शिक्षक शिक्षा संस्थान अपने शिक्षा कार्यक्रमों और कक्षा सुविधाओं को पुनर्गठित करने का प्रयास कर रहे हैं, ताकि आज और भविष्य के बीच शिक्षण और सीखने की प्रौद्योगिकी के अंतर को कम किया जा सके।

आईसीटी समाज में गतिशील परिवर्तन ला रहे हैं, जो जीवन के सभी पहलुओं पर प्रभाव डाल रहे हैं। इसका प्रभाव स्कूलों में भी अधिकाधिक महसूस किया जा रहा है। आईसीटी छात्रों और शिक्षकों दोनों को व्यक्तिगत जरूरतों के अनुसार सीखने और सिखाने के अधिक अवसर प्रदान करते हैं, जिससे समाज स्कूलों को इस तकनीकी नवाचार के लिए उपयुक्त प्रतिक्रिया देने के लिए मजबूर कर रहा है।

इस समीक्षा लेख में सूचना संचार प्रौद्योगिकी (आईसीटी) शब्दों की परिभाषा का तात्पर्य कंप्यूटर और इंटरनेट कनेक्शन से है, सीखने के उद्देश्य से जानकारी को संभालना और संप्रेषित करना।

ई–लर्निंग– एक शिक्षण कार्यक्रम है जो पाठ्यक्रम वितरण, इंटरैक्शन या सुविधा के लिए सूचना नेटवर्क – जैसे इंटरनेट, इंट्रानेट या एक्स्ट्रानेट का उपयोग करता है, चाहे पूर्ण या आंशिक रूप से।

वेब–आधारित शिक्षा– ई–लर्निंग का एक उपसमूह है और यह मॉडल, ब्लैकबोर्ड या इंटरनेट एक्सप्लोरर (टिनियो, 2002) जैसे इंटरनेट ब्राउज़र का उपयोग करके सीखने को संदर्भित करता है।

मिश्रित शिक्षण– ऐसे शिक्षण मॉडल को संदर्भित करता है जो आमने–सामने कक्षा अभ्यास को ई–लर्निंग समाधानों के साथ जोड़ता है। उदाहरण के लिए, एक शिक्षक कक्षा में छात्रों को सीखने की सुविधा प्रदान कर सकता है और कक्षा से बाहर सीखने की सुविधा के लिए मॉडल (मॉड्यूलर ऑब्जेक्ट ओरिएंटेड डायनेमिक लर्निंग एनवायरनमेंट) का उपयोग कर सकता है।

रचनावाद– यह सीखने का एक प्रतिमान है जो सीखने को एक प्रक्रिया के रूप में मानता है, जिसमें व्यक्ति अपने पूर्व ज्ञान और अनुभव के आधार पर अर्थ या नए ज्ञान का निर्माण करते हैं (जोहासेन, 1991)। शिक्षक इसे लंबे समय से मौजूद व्यवहारवादी दृष्टिकोण के विपरीत उभरती शिक्षाशास्त्र भी कहते हैं।

शिक्षार्थी–केंद्रित शिक्षण वातावरण यह एक ऐसा सीखने का वातावरण है जो उन ज्ञान, कौशल, दृष्टिकोण और विश्वासों पर ध्यान देता है जो शिक्षार्थी अपने साथ सीखने की प्रक्रिया में लाते हैं। इसकी प्रेरणा सीखने के एक प्रतिमान से प्राप्त होती है जिसे रचनावाद कहा जाता है। इस लेख के संदर्भ में, इसका अर्थ है कंप्यूटर और इंटरनेट कनेक्शन का उपयोग करके सीखने के कार्य में छात्रों की व्यक्तिगत भागीदारी।

सीखने में सुधार के लिए नई सूचना और संचार प्रौद्योगिकियों (आईसीटी) की शक्ति का प्रभावी ढंग से उपयोग करने के लिए, निम्नलिखित आवश्यक शर्तों को पूरा किया जाना चाहिए–

- छात्रों और शिक्षकों के पास अपनी कक्षाओं, स्कूलों और शिक्षक शिक्षा संस्थानों में डिजिटल प्रौद्योगिकियों और इंटरनेट की पर्याप्त पहुंच होनी चाहिए।
- शिक्षकों और शिक्षार्थियों के लिए उच्च गुणवत्ता, सार्थक और सांस्कृतिक रूप से उत्तरदायी डिजिटल सामग्री उपलब्ध होनी चाहिए।
- सभी छात्रों को उच्च शैक्षणिक मानक हासिल करने में मदद करने के लिए शिक्षकों के पास नए डिजिटल टूल और संसाधनों का ज्ञान और कौशल होना चाहिए।

अपने शिक्षण अभ्यासों में नए शिक्षण उपकरणों का प्रभावी ढंग से उपयोग करने के लिए शिक्षकों को प्रशिक्षित करना आवश्यक है। कई शिक्षक शिक्षा कार्यक्रमों के लिए, इस कठिन कार्य के लिए नए संसाधनों, विशेषज्ञता और सावधानीपूर्वक योजना की आवश्यकता होती है। इस कार्य को पूरा करने में यह समझना सहायक है:–

- वैश्विक समाज पर प्रौद्योगिकी का प्रभाव और शिक्षा पर इसका प्रभाव महत्वपूर्ण है।
- लोग कैसे सीखते हैं और अधिक प्रभावी और आकर्षक छात्र–केंद्रित शिक्षण वातावरण बनाने के बारे में व्यापक ज्ञान उत्पन्न हुआ है।
- शिक्षक विकास के चरण और शिक्षकों द्वारा आईसीटी को अपनाने के स्तर विभिन्न हैं।
- शिक्षक शिक्षा में प्रौद्योगिकी के एकीकरण के लिए संदर्भ, संस्कृति, नेतृत्व और दृष्टि, आजीवन सीखने और योजना में परिवर्तन प्रक्रिया का महत्वपूर्ण महत्व है।
- सामग्री, शिक्षाशास्त्र, तकनीकी मुद्दों, सामाजिक मुद्दों, सहयोग और नेटवर्किंग से संबंधित शिक्षकों के लिए आवश्यक आईसीटी दक्षताएँ महत्वपूर्ण हैं।
- शिक्षक शिक्षा में आईसीटी के कार्यान्वयन का मार्गदर्शन करने के लिए मानक विकसित करने का महत्व है।
- शिक्षक शिक्षा में आईसीटी के सफल एकीकरण के लिए आवश्यक शर्तें पूरी होनी चाहिए।
- शिक्षक शिक्षा में आईसीटी को शामिल करने की योजना बनाने और परिवर्तन प्रक्रिया के प्रबंधन पर विचार करने के लिए महत्वपूर्ण रणनीतियाँ अपनानी होंगी।

यह दस्तावेज़ शिक्षक शिक्षा में आईसीटी के लिए एक रूपरेखा प्रदान करता है और उन आवश्यक शर्तों का वर्णन करता है जिन्हें सफल प्रौद्योगिकी एकीकरण के लिए पूरा किया जाना चाहिए। यह

शिक्षक शिक्षा में आईसीटी को एकीकृत करने में उपयोग किए जा सकने वाले दृष्टिकोणों की विविधता को दर्शाते हुए केस अध्ययन प्रस्तुत करता है और उच्च गुणवत्ता वाली रणनीतिक प्रौद्योगिकी योजना के विकास के लिए दिशानिर्देश प्रदान करता है। अंत में, यह परिवर्तन प्रक्रिया की योजना बनाने और प्रबंधन करने और शिक्षक शिक्षा कार्यक्रम में आईसीटी को एकीकृत करने के लक्ष्यों को प्राप्त करने के लिए सभी हितधारकों के बीच समर्थन का व्यापक आधार बनाने के महत्व पर चर्चा करता है।

शिक्षा में सूचना संचार प्रौद्योगिकी (आईसीटी) के महत्व को समझना आवश्यक है। आईसीटी इसमें शामिल विभिन्न तकनीकों की मदद से नवीनतम विकास के साथ तालमेल बनाए रखने में मदद करता है।

''वर्ल्ड वाइड वेब (WWW) वर्ल्ड वाइड वेब का मतलब इंटरनेट की सबसे महत्वपूर्ण और व्यापक रूप से स्वीकृत सेवाओं (जैसे IRC, ई–मेल आदि) में से एक है। इसकी लोकप्रियता नाटकीय रूप से बढ़ी है, क्योंकि इसमें रंगीन और समृद्ध सामग्री का उपयोग करना बहुत आसान है। डेनिस पी. कर्टिन (2002) के अनुसार, वेब कंप्यूटर साइटों या वेबसाइटों पर संग्रहीत परस्पर जुड़े दस्तावेज़ों की एक श्रृंखला है।

''ई–लर्निंग'':– ई–लर्निंग को ऑनलाइन लर्निंग के नाम से भी जाना जाता है। इसमें औपचारिक और गैर–औपचारिक दोनों स्तरों पर सीखना शामिल है, जो एक सूचना नेटवर्क – इंटरनेट, इंट्रानेट या एक्स्ट्रानेट का उपयोग करता है। घटकों में ई–पोर्टफोलियो, साइबर इन्फ्रास्ट्रक्चर, डिजिटल लाइब्रेरी और ऑनलाइन लर्निंग ऑब्जेक्ट रिपॉजिटरी शामिल हैं। उपरोक्त सभी घटक उपयोगकर्ता की डिजिटल पहचान बनाते हैं और शिक्षा में सभी हितधारकों को जोड़ते हैं। यह अंतर–विषयक अनुसंधान की सुविधा भी प्रदान करता है

''समूह चर्चा'' इंटरनेट रिले चैट (IRC) एक लोकप्रिय इंटरनेट सेवा है जिसका उपयोग लोग ज्यादातर लाइव चैटिंग के लिए करते हैं। समान रुचि वाले लोगों का समूह इंटरनेट के माध्यम से तुरंत विचारों और राय का आदान–प्रदान कर सकता है।

''आईसीटी का शिक्षा में उपयोग'' शिक्षा का समर्थन करने के लिए आवश्यक इंटरनेट प्रौद्योगिकियों में वर्ल्ड वाइड वेब (WWW) वीडियो कॉन्फ्रेंस, टेली–कॉन्फ्रेंस, मोबाइल कॉन्फ्रेंस, सीडी डेटाबेस, वर्ड–प्रोसेसर, इंट्रानेट और इंटरनेट शामिल हैं। इन तकनीकों के माध्यम से शिक्षा को अधिक प्रभावी और सुलभ बनाया जा सकता है।

''ई–मॉड्यूल'' लिखे गए मॉड्यूल को वर्ड प्रोसेसर का उपयोग करके डिजिटल संस्करण में परिवर्तित और संग्रहीत किया जाता है, जो इंटरनेट के माध्यम से उपयोगकर्ता द्वारा सुलभ होते हैं।

''टेलीकांफ्रेंसिंग''

1. ''ऑडियो कॉन्फ्रेंसिंग'' इसमें टेलीफोन नेटवर्क पर ध्वनि संदेशों का लाइव (वास्तविक समय) आदान–प्रदान शामिल होता है। जब ध्वनि संदेशों के साथ कम–बैंड चौड़ाई वाले पाठ और ग्राफ़, आरेख या चित्र जैसी स्थिर छवियों का भी आदान–प्रदान किया जाता है, तो इस प्रकार की कॉन्फ्रेंसिंग को ऑडियो ग्राफिक कहा जाता है। नॉन–मूविंग विजुअल्स को कंप्यूटर कीबोर्ड का उपयोग करके या ग्राफिक्स टैबलेट या व्हाइटबोर्ड पर ड्राइंग/लिखकर जोड़ा जाता है।
2. ''वीडियो कॉन्फ्रेंसिंग'' वीडियो कॉन्फ्रेंसिंग न केवल आवाज और ग्राफिक्स बल्कि चलती छवियों के आदान–प्रदान की भी अनुमति देती है। वीडियो–कॉन्फ्रेंसिंग तकनीक टेलीफोन लाइनों का उपयोग नहीं करती, बल्कि उपग्रह लिंक या टेलीविजन नेटवर्क (प्रसारण/केबल) का उपयोग करती है।
3. ''वेब–आधारित कॉन्फ्रेंसिंग'' वेब–आधारित कॉन्फ्रेंसिंग, जैसा कि नाम से पता चलता है, इसमें इंटरनेट के माध्यम से टेक्स्ट और ग्राफिक, ऑडियो और विजुअल मीडिया का प्रसारण शामिल है। इसके लिए ब्राउज़र वाले कंप्यूटर की आवश्यकता होती है और संचार सिंक्रोनस और एसिंक्रोनस दोनों हो सकता है।
4. ''मुक्त और दूरस्थ शिक्षा'' आईसीटी के माध्यम से प्राप्त ये सभी सेवाएँ शिक्षक शिक्षा में महत्वपूर्ण भूमिका निभाती हैं। यह उच्च भागीदारी और अधिक सहभागिता की अनुमति देता है। इसके माध्यम से सीखने, निर्देशित निर्देश, स्व–शिक्षा, समस्या समाधान, जानकारी की तलाश और विश्लेषण और आलोचनात्मक सोच के साथ–साथ संवाद करने, सहयोग करने और सीखने की क्षमता प्रदान करके शिक्षा की गुणवत्ता में सुधार होता है।

शिक्षण प्रशिक्षण कार्यक्रमों में आईसीटी (सूचना और संचार प्रौद्योगिकी) के उपयोग से शिक्षण की गुणवत्ता में प्रभावी ढंग से वृद्धि होगी। आज के उन शिक्षकों की मांग को पूरा करने के लिए एक अच्छी तरह से डिज़ाइन किया गया शिक्षक प्रशिक्षण कार्यक्रम आवश्यक है जो यह सीखना चाहते हैं कि अपने शिक्षण के लिए आईसीटी का प्रभावी ढंग से उपयोग कैसे किया जाए।

शिक्षक प्रशिक्षकों और नीति निर्माताओं के लिए यह महत्वपूर्ण है कि वे शिक्षक प्रशिक्षण में आईसीटी के उपयोग के विभिन्न दृष्टिकोणों की प्रभावशीलता और लागत–प्रभावशीलता को प्रभावित करने वाले कारकों को समझें ताकि ऐसे परिवर्तनों को सभी के लिए व्यवहार्य बनाने के लिए प्रशिक्षण रणनीतियों का उचित रूप से पता लगाया जा सके। इसलिए, यदि शिक्षण प्रशिक्षण कार्यक्रम संचालित करने वाले संस्थान अपने कार्यक्रमों में आईसीटी का उपयोग करते हैं, तो हमारी शिक्षण–अधिगम प्रक्रिया अधिक सफल होगी और हमारे देश के हर प्रकार के छात्रों के लिए बहुत आसान और समझने में सक्षम बनेगी।

अंत में, अच्छे शिक्षण अभ्यासों के मल्टीमीडिया सिमुलेशन की पेशकश करने, व्यक्तिगत प्रशिक्षण पाठ्यक्रम प्रदान करने, शिक्षकों के अलगाव को दूर करने में मदद करने, व्यक्तिगत शिक्षकों को निरंतर आधार पर बड़े शिक्षण समुदाय से जोड़ने और शिक्षक सहयोग को बढ़ावा देने में आईसीटी की विशिष्ट भूमिकाओं पर अधिक ध्यान दिया जाना चाहिए। शिक्षक के व्यावसायिक विकास के लिए आईसीटी के उपयोग के इच्छित परिणामों के साथ–साथ अनपेक्षित परिणामों का भी पता लगाने की आवश्यकता है।

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IMPORTANCE OF BLENDED LEARNING IN INDIAN HIGHER EDUCATION

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Abstract - India's National Education Policy (NEP) 2020 places a strong emphasis on cutting-edge teaching strategies, such as blended learning, to improve the caliber and accessibility of higher education. Numerous advantages come with blended learning, which combines traditional classroom education with online activities. These include greater teacher-student interaction, personalized learning, flexibility, and cost-effectiveness. However, there are obstacles to overcome, like those related to technology, change aversion, educational changes, quality control, and evaluation complexity. Effective implementation techniques include creating a strong technology foundation, supplying ongoing professional development for educators, creating a curriculum that works, guaranteeing standards of quality, and providing extensive student support services. The potential of blended learning is demonstrated in this paper through case studies from universities such as Amity University, IIM Bangalore, and the University of Delhi. With the introduction of new technologies, greater teamwork, and an emphasis on lifelong learning, the prospects for Indian higher education are bright.
Keywords: Blended learning, NEP 2020, Indian Higher Education, Personalized learning.

Introduction

India's higher education system is changing dramatically as a result of technology breakthroughs and rising demand for individualized and flexible learning programs. To improve education quality and accessibility, the National Education Policy (NEP) 2020 has placed a strong emphasis on the necessity for creative teaching strategies. Blended learning is one such technique that mixes traditional in-person classroom instruction with virtual learning experiences. This paper addresses the applicability of blended learning in Indian higher education, examining its advantages, difficulties, and potential.

Blended Learning Concept

Hybrid learning, or blended learning, is a teaching strategy that combines traditional classroom techniques with digital content found online. It necessitates the teacher and student being present in person, and it gives the student some degree of control over the course, location, pace, and timing (Garrison & Kanuka, 2004). This approach creates a more adaptable and productive learning environment by offering a balanced blend of in-person instruction and online learning materials.

Advantages of Blended Learning

1. Improved Educational Opportunity

The finest elements of both online education and traditional classroom instruction are combined in blended learning. Through the integration of several multimedia resources, interactive information, and online evaluations, it provides a more comprehensive learning experience (Graham, 2006). Through online platforms, students can collaborate on projects, participate in conversations, and access a variety of learning materials, which improves their engagement and comprehension of the subject matter.

2. Adaptability and Availability

The flexibility of blended learning is one of its biggest benefits. It is simpler for students to manage their studies with other responsibilities when they have access to course materials and may finish assignments at their own pace and convenience (Means et al., 2013). Because it eliminates the requirement for on-campus attendance, this kind of instruction is especially advantageous for non-traditional students, working professionals, and people who live in remote locations.

3. Individualised Education

A more individualized approach to education is made possible through blended learning. Instructors can determine each student's strengths and shortcomings by utilizing data from online activities and exams, and then adjusting their lesson plans accordingly (Picciano, 2009). With the aid of this tailored feedback, pupils can perform better and attain higher learning objectives.

4. Enhanced Interaction Between Teachers and Students

Blended learning can improve teacher-student communication, despite the misconception that it decreases interaction. There are more options for involvement outside of the classroom with online forums, discussion boards, and virtual office hours (Vaughan, 2007). This increased engagement creates a supportive learning environment and strengthens the bonds between educators and students.

5. Cost-Effectiveness

For universities and other higher education institutions, blended learning may be an affordable option. It enables more effective resource usage and lessens the demand for physical infrastructure, such as lecture halls and classrooms (Bliuc et al., 2007). Online resources can also be readily updated and reused, which lowers the expense of creating new information.

The Difficulties of Blended Learning

1. Technological Difficulties

The lack of appropriate technology infrastructure in India is one of the main obstacles to blended learning adoption. Many schools lack the internet connectivity and equipment needed to provide online learning, especially those in rural areas (Kumar, 2019). The efficacy of blended learning may be hampered by this digital divide, which may also keep out students from underprivileged backgrounds.

2. Opposition to Change

Blended learning adoption may be hampered by teachers' and students' resistance to change. While students used to traditional classroom environments might find it challenging to adjust to online learning, teachers might be reluctant to embrace new technologies and instructional approaches (Moskal et al., 2013). It takes both teachers' and students' effective training and support to overcome this reluctance.

1. Assurance of Quality

Another difficulty is guaranteeing the caliber of evaluations and online content. To guarantee that online resources are of the highest caliber and complement the curriculum, strict standards and regulations are required (Garrison & Vaughan, 2008). For educational institutions to offer a worthwhile learning experience, they must invest in the creation and upkeep of excellent online resources.

1. Educational Difficulties

A change in pedagogical approach is necessary for blended learning, with a stronger focus on student-centered learning and active interaction. It can be difficult for teachers to create courses that successfully combine in-person and virtual learning components (Osguthorpe & Graham, 2003). To provide teachers with the abilities and information required to create and instruct blended learning courses, professional development programs are crucial.

1. Evaluation and Assessment

In a blended learning setting, evaluating student achievement can be challenging. Online activities and group projects might not be well-suited for traditional assessment techniques (Picciano et al., 2010). Institutions must create fresh approaches to assessment that fully account for the variety of student learning objectives and experiences.

Techniques for Blended Learning Implementation in India

1. Building Up the Technology Base

To successfully integrate blended learning, a strong technology infrastructure must be developed. This includes giving instructors and students access to dependable learning management systems (LMS), fast internet, and digital gadgets (Kumar, 2019). To close the digital divide and guarantee that all institutions have access to the technology needed to facilitate blended learning, government efforts like the Digital India program can be extremely helpful.

2. Education and Career Advancement

Teachers must get ongoing professional development if blended learning is to be used successfully. Digital literacy, pedagogical expertise, and the capacity to create and present online information should be the main goals of training programs (Garrison & Vaughan, 2008). Online communities of practice, where educators exchange materials and best practices, are another way that institutions can support their students.

3. Design and Integration of Curriculum

Creating a curriculum that successfully combines in-person and virtual learning is essential for blended learning. According to Osguthorpe and Graham (2003), this calls for a deep comprehension of the subject matter, learning objectives, and student requirements. Universities should take a collaborative approach to curriculum design, bringing in teachers, instructional designers, and technology specialists.

4. Maintaining Standards and Quality

To guarantee that blended learning meets quality requirements, educational institutions need to create and follow strict norms. This entails routinely assessing instructional strategies, examinations, and online content (Garrison & Vaughan, 2008). The quality of blended learning programs can also be monitored and ensured by accreditation agencies.

5. Services for Supporting Students

Offering extensive support services is crucial to assisting students in thriving in a blended learning setting. According to Means et al. (2013), this includes mental health services, technological support, and academic

guidance. In order to help students acquire the skills necessary for online learning and to acquaint them with the blended learning format, educational institutions should also offer orientation programs.

Case Studies of Blended Education in Higher Education in India

1. Amity University

Blended learning has been effectively used by Amity University in all of its programs. The institution offers a holistic learning experience through a blend of in-person instruction, interactive simulations, and online lectures (Amity Institution, 2020). Higher learning outcomes and more student engagement have been attained through the use of digital tools and sophisticated LMS.

2. Bangalore's Indian Institute of Management (IIM)

A blended learning strategy has been implemented by IIM Bangalore for its executive education courses. Working people can integrate their education with their professional responsibilities thanks to the institute's combination of online modules and in-person workshops and seminars (IIM Bangalore, 2020). Students now have more accessibility and flexibility thanks to this method.

3. Delhi University

The COVID-19 pandemic has prompted the University of Delhi to launch measures for blended learning. To enhance traditional classroom instruction, the university has created virtual labs and online courses (University of Delhi, 2020). These programs have aided in preserving educational continuity and giving students access to a flexible learning environment.

Blended Learning's Future Prospects in India

1. Growth of Programmes for Blended Learning

More educational institutions are probably going to use blended learning as its advantages become more widely acknowledged. The blended learning program expansion is supported by the NEP 2020's emphasis on technology integration and flexible learning approaches (Ministry of Education, 2020).

2. Technological Developments

It is anticipated that technological developments like virtual reality, artificial intelligence, and adaptive learning platforms will increase blended learning's efficacy even further (Picciano, 2017). By offering immersive learning environments, real-time feedback, and personalized learning experiences, these technologies can improve the effectiveness and engagement of education.

3. Enhanced Partnerships and Collaborations

Blended learning can be innovative when educational institutions, technology providers, and industry work together. Partnerships can make it easier to provide top-notch online content, give users access to cutting-edge tools, and provide chances for hands-on learning (Garrison & Kanuka, 2004).

4. Emphasizing lifelong learning

The increasing demand for continual professional development and lifelong learning can be met by blended learning. People must constantly upgrade their knowledge and skills as the labour market changes. Throughout their careers, people can pursue continuing education and professional development in a flexible and accessible manner via blended learning (Means et al., 2013).

Final Thoughts

A viable strategy to improve the standard, flexibility, and accessibility of higher education in India is blended learning. Blended learning offers a more comprehensive and individualized learning experience by merging traditional classroom instruction with online learning activities. The use of blended learning in higher education is encouraged by the NEP 2020's emphasis on cutting-edge teaching techniques and technological

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USE OF MODERN TECHNOLOGY IN TEACHING & LEARNING

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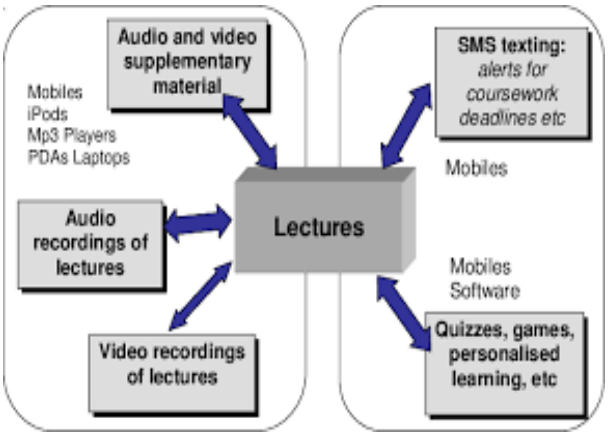
Abstract - In today's rapidly changing world, technology has become an integral part of modern education. The use of technology in schools and colleges has revolutionized the way students learn and teachers teach. It has made education more accessible, engaging, and interactive, creating endless possibilities for both students and teachers. One of the most significant benefits of technology in education is the ability to personalize learning. With the help of technology, teachers can create individualized lesson plans that cater to each student's unique learning style, pace, and interests. Students can also access a wealth of online resources and tools that enable them to learn at their own pace, on their own time, and in their preferred environment.

Introduction

Technology has made learning more engaging and interactive nowadays. Gone are the days of blackboards and textbooks- modern classrooms are equipped with digital devices, interactive whiteboards, and online platforms that allow students to participate in virtual discussions, quizzes, and games. These tools not only make learning fun but also help students retain information better and enhance their critical thinking and problem-solving skills.

Another issue is that technology has the potential to be a distraction in the classroom. With so many digital devices and online platforms available, it can be tempting for students to get sidetracked and lose focus on their studies. Teachers must, therefore, find ways to balance the use of technology in the classroom and ensure that it is used effectively to enhance learning rather than detract from it.



Believe that the role of technology in modern education is significant and far-reaching. It has the potential to transform the way we teach and learn, making education more accessible, engaging, and interactive. However, it is important to address the challenges that come with technology in education, such as the digital divide and the potential for distraction. By doing so, we can ensure that technology is used effectively to enhance learning and prepare students for success in the digital age.

Despite the many benefits of technology in education, some challenges must be addressed. The digital divide is one of the most major challenges. Not all students have access to the necessary digital devices or reliable internet connections, which can lead to disparities in learning opportunities. It is therefore essential to ensure that all students have access to the necessary technology to participate fully in digital learning. 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, technology is used by each member of society anywhere, anytime, and even in all types of daily work.

Let's talk about how these technologies impact the field of education. Nowadays people are getting more addicted and dependent on the usage of technology while doing their daily work. 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.

The era of the 21st century is often regarded as an era of MODERN TECHNOLOGY

Technology has impacted almost everywhere and everyone's life, and if we talk about education, then there is no exception. Today, we can't think about these technologies and the use of these technologies is a very essential part of our life. 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 their way of thinking level for new things also changed.

After COVID-19, 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 information like books, audio, video, images, etc. at one fingertip through the internet, and much more learning information 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.

Impact of Modern Technology on Education:

1. Providing useful knowledge (teaching and learning)
2. Technology as a tool to support teaching
3. Technology has made students' lives easy
4. Easy to store information
5. Digital classrooms
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:

There are tremendous challenges in the education field and teachers are facing barriers due to the rapid expansion of knowledge. Modern technologies require 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.

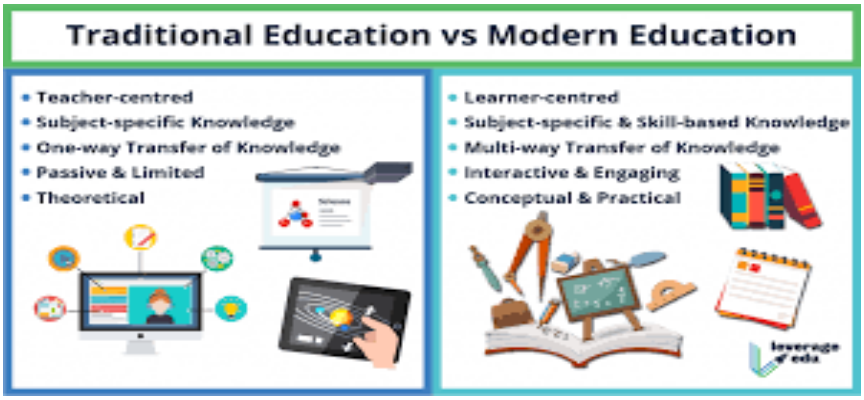
There are the following benefits of ICT in education:

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

Positive and Negative Impact

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.

Nowadays, students are dependent on technology 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 shows how much they are dependent on technology. Modern technology wastes the precious time of the students because 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 we know 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. As technology is more useful for studying and effective learning, it also distracts the students from their studies and involves them in other kinds of activities.

CONCLUSION

The use of technology in schools and colleges has revolutionized the way students learn and teachers teach. It has made education more accessible, engaging, and interactive, creating endless possibilities for both students and teachers. I am not saying that modern technology is not beneficial in education for students, but also students should be aware of how to use these technologies in their lives. 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.

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BLENDED LEARNING: BRIDGING TRADITION WITH INNOVATION

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Abstract - The cutting-edge idea of blended learning combines the best aspects of both conventional classroom instruction and ICT-supported learning, encompassing both online and offline learning. It offers opportunities for constructive learning, computer-assisted learning, and collaborative learning (CAI). For blended learning to be implemented successfully, it requires a lot of work, the correct mindset, a sizable budget, and highly motivated teachers and students. It is complicated to organize because it encompasses many modalities, making it a challenging undertaking. This article explores the idea of blended learning, outlining its key components and the necessary conditions for putting it into practice. Also covered is the use of blended learning in the Indian educational system. Additionally, the current research attempts to clarify why blended learning is a necessary method.
Keywords: Blended learning, teaching practice.

1. INTRODUCTION

A combination of traditional in-person instruction and online learning is known as blended learning. Because it raises learning standards, boosts exam passing rates, adds flexibility to the schedule, and breaks down geographical barriers, this kind of learning is becoming more and more popular in many globally recognized universities [1–3]. Blended learning is more beneficial because of the multi-delivery strategy to maximize learning outcomes and reduce content delivery costs. In blended learning, the word "blend" refers to the blending of digital materials with in-person lessons and activities. The transitional phase between receiving teaching in-person in the classroom and receiving the entire curriculum online is known as blended learning. As a result, one kind of digital integration in education is blended learning. Online learning, another kind of digital teaching, is not the same as blended learning. Pre-planned chained or combination models are used to implement blended learning. On the other hand, online learning can be implemented through on-campus or off-campus modes. When a course is blended, teachers can access more course content more effectively, engage students more deeply, and have greater pedagogical freedom. There is no set method for combining traditional face-to-face instruction-based classroom learning with autonomous online learning, synchronous or asynchronous online learning, or both. A well-thought-out pedagogical model, on the other hand, is beneficial and crucial in preparing students for a cycle of learning that is cohesive and designed by qualified staff. This survey attempts to determine the relative significance of various blended learning procedures, methods, instruments, strategies, plans, and frameworks that have been put forth recently. It has been noted that this educational tool is incredibly efficient during COVID-19 times.

1.1 Blended learning

Blended learning combines face-to-face teaching with ICT-supported learning methods. It includes direct instruction, indirect instruction, collaborative teaching, and individualized computer-assisted learning. Components of blended learning encompass:
Face-to-face teaching: Traditional classroom interaction fosters synchronous communication, allowing students to engage with teachers personally. Student interaction with course content: Students interact directly with course materials through traditional methods and indirectly through ICT-mediated learning, such as videos, blogs, and e-books. Group discussion and exchange of ideas: Classroom strategies promote discussion among students, building confidence and communication skills. Accessing the e-library: Digital libraries provide access to a wide range of materials, enriching students' knowledge and broadening their perspectives. Virtual classroom: Students can learn remotely, participate in virtual meetings, and interact with peers and teachers regardless of geographical boundaries. Online assessment: immediate feedback enhances learning, making evaluation more transparent and reliable. E-tuitions: Personalized guidance is available through online tutoring, catering to individual student needs. Webinars: Students can participate in online seminars, engaging with experts and peers via video conferencing. Viewing expert lectures on YouTube: Access to lectures from renowned experts enhances learning opportunities. Online learning through videos and audio: Multimedia resources make complex concepts more accessible and engaging. Virtual laboratories: Professional courses utilize virtual labs for hands-on learning safely and cost-effectively. Blended learning integrates these components to create a comprehensive educational framework.

2. WHY MUST HIGHER EDUCATION PRACTICE BLENDED LEARNING?

In the ever-evolving landscape of higher education, the call for innovation resonates louder than ever before. Traditionally, the ivory towers of academia stood as bastions of face-to-face interaction, where lectures echoed through hallowed halls and laboratories buzzed with the energy of discovery. Yet, as the digital age unfolds and a new generation of learners emerges, the static tableau of traditional pedagogy begins to fade into obsolescence. Today's students, born into a world of interconnected devices and boundless information, demand a learning experience that transcends the confines of the physical classroom. Blended learning emerges as the beacon of educational transformation, marrying the rich heritage of face-to-face instruction with the dynamic potential of digital technology. In this age of rapid technological advancement, the walls of the classroom extend beyond brick and mortar, reaching into the vast expanse of cyberspace. Blended learning becomes not merely a choice but a necessity—a bridge between the tangible and the virtual, between tradition and innovation. By embracing blended learning, higher education institutions unlock a realm of possibilities where lectures become interactive multimedia experiences, tutorials transcend time and space through online forums, and laboratories evolve into virtual realms of exploration. In this fluid landscape, learning knows no boundaries, no limitations—only boundless potential waiting to be tapped.

Thus, the imperative for higher education to practice blended learning becomes clear—a mandate to adapt, to evolve, to meet the needs of a new era. For in the fusion of tradition and technology lies the key to unlocking the future of education—a future where innovation thrives, where knowledge knows no bounds, and where every student has the opportunity to reach for the stars.

3. ADVANTAGES OF BLENDED LEARNING

Blended learning provides unparalleled flexibility, which allows students to access different avenues. Students can pace the study material and resources at their own pace. Students can tailor learning experiences to suit their individual needs and performances.

3.1 Irrelevant Teacher-Centered Approach

A recent study conducted by Okaz (2015) indicated that students exhibit feelings of boredom and disconnection with conventional teaching methodologies, which are often characterized by a passive instructional style that discourages critical thinking. This dissatisfaction is attributed to the pervasive influence of technology, which has reshaped students' behaviors, attitudes, and preferences in learning methods and communication beyond the confines of the classroom. To cultivate a more engaging and supportive learning environment for today's learners, blended learning emerges as a promising approach, addressing the escalating expectations and requirements for students's educational success. Moreover, as noted by Kashefi, Ismail, and Yusof (2012), industries have voiced concerns regarding the quality of graduates, particularly in engineering fields, citing deficiencies in technical competence, communication skills, critical thinking abilities, and teamwork capabilities. These shortcomings are believed to stem from the limitations of traditional teacher-centered approaches, which fail to fully engage the cognitive faculties. Thus, Graham (2004) advocates for the adoption of blended learning as a means to enrich pedagogy and foster holistic learning experiences.

3.2 Increase Access or Flexibility of Time and Place

Sivakumar et al. (2013) highlighted another rationale behind Graham's (2004) advocacy for blended learning: enhancing access and flexibility in learning. This approach allows students to engage in online learning while reducing formal classroom time, as supported by a study by Okaz (2015). By granting students greater control over their learning pace and schedule, blended learning enables them to delve deeper into course content at their convenience. Additionally, digitally literate students can leverage online resources, engage in discussions with peers, and express critical opinions outside of class time, as emphasized by Garrison and Kanuka (2004). In essence, blended learning fosters both independent study and collaborative learning experiences for higher education students.

3.3 Solution to Classroom Insufficiency by Reducing Seat Time

Apart from enhancing student flexibility, blended learning also offers advantages for lecturers and faculty, as noted by Owston, York, and Murtha (2013). By integrating online learning with limited face-to-face interaction, instructors can better manage their teaching schedules, reducing formal classroom time. This not only optimizes classroom space usage but also addresses issues of classroom insufficiency, as highlighted by Sabri et al. (2010). Additionally, instructors can leverage online tutorials and discussions to facilitate teaching at any time, enhancing their flexibility in course delivery.

3.4 Cost Effectiveness

The flexibility of time and space not only benefited the students, lecturers, and faculty, but it also reduced costs in physical infrastructure and improved scheduling efficiencies, as revealed by Graham (2004) and later by Sivakumar et. al. (2013) in their studies.

4. DRAWBACKS AND ISSUES IN BLENDED LEARNING

Blended learning implementation also involved some issues of concern. There are several earlier studies and recent studies that have discussed its drawbacks. In research, Graham (2004), described five matters of concern regarding blended learning. There was the loss of classroom community feelings, the role of self-regulation as an independent learner, support, and training for instructors and learners, the digital divide, and cultural adaptation of course materials. Other than that, there is also a technical issue regarding the online component of blended learning that has to be tackled, as revealed by Sabri et. al. (2010). Graham (2004) proposed that higher education learners should have the freedom to choose between face-to-face, fully online, or blended learning formats for each course. Okaz (2015) referenced a study by Paechter and Maier (2010), stating that students often perceive traditional classroom settings as more conducive to social interaction, teamwork, and effective learning with peers. However, in blended environments, some students feel a lack of belonging and struggle to connect with instructors due to delayed responses and diminished social interaction. In terms of self-regulation, Collis (2003), as cited by Graham (2004), emphasized the importance of strong self-discipline for success in the online component of blended learning. Okaz (2015) noted that students who struggle in blended settings often lack the motivation or willingness to embrace new instructional approaches outside their comfort zones. Support and training are crucial for both instructors and learners in blended learning environments. Graham (2004) stressed the need for instructors to adapt their course content to evolving technology, requiring additional time and a willingness to embrace change. Okaz (2015) highlighted the importance of IT expertise for troubleshooting technical issues, as well as the necessity for learners to develop computer-related skills to succeed in blended environments. The digital divide presents a significant challenge in implementing blended learning, particularly in regions with varying socioeconomic conditions. Graham (2004) expressed concern about the feasibility of blended approaches in diverse populations at a reasonable cost. Okaz (2015) also raised issues regarding technological infrastructure in some countries, where reliance on online components may not be practical due to electricity shortages. Furthermore, cultural adaptation of course materials is essential to maintaining relevance and significance in blended learning environments. While traditional classroom materials are typically tailored to local contexts, online learning requires a more standardized approach. Customization of course materials is necessary to meet the needs of diverse educational communities while ensuring cultural relevance and meaningfulness.

5. RECOMMENDATIONS TO SUCCEED IN BLENDED ENVIRONMENTS

From the extensive research spanning from 2002 to 2016, valuable insights have been gleaned regarding the effective implementation of blended education. Garrison and Kanuka (2004) emphasize the importance of establishing robust policies, meticulous planning, resource allocation, and robust technical support systems. These measures are essential to ensuring that blended education becomes an accessible, cost-effective, and engaging learning method, particularly for high student enrollments and in-demand courses. Strategic planning is crucial, encompassing both long-term goals and operational considerations, such as budgeting, resource utilization, technology management, and assessment procedures. Maarop and Embi (2016) underscore the necessity for Higher Learning Institutions (HLIs) to conduct needs analyses before implementing blended courses, ensuring alignment with institutional objectives, and selecting appropriate learning models. Human capital and technical expertise play pivotal roles in the development and delivery of blended courses. Garrison and Kanuka (2004) stress the need for instructors proficient in technology, while Maarop and Embi (2016) advocate for staff training and robust IT support systems to address challenges such as increased workload and a lack of pedagogical and technical skills. Collaboration among instructors within interest groups facilitates knowledge sharing and dissemination of best practices. Furthermore, Garrison and Kanuka (2004) recommend that institutions offering blended learning provide dedicated technical support services for both faculty and students. A dedicated student service support center can assist students with software information, Internet access, and computer skills necessary for success in a blended learning environment. Similarly, teaching faculty require technical support and assistance in course development, warranting the formation of course development teams comprising subject matter experts, instructional designers, and media specialists.

6. CONCLUSION

Abdul Rasool, Mishra, and Khalaf (2010) assert that blended learning marks a shift from instructor-centered to learner-centered education. Maarop and Embi (2016) argue that in today's educational landscape, a singular

delivery mode fails to meet the diverse needs of students in terms of engagement, preference, relevance, social interaction, and effective learning, necessitating a blend of delivery modes. Blended learning fosters independent learning through interactive and motivating approaches, catering to the demands of industries for graduates capable of applying knowledge in varied environments, as noted by Sabri et al. (2010). Combining technology with face-to-face instruction in blended learning cultivates employability skills and enhances critical thinking, crucial for modern graduates. In Malaysia, Grapragasem, Krishnan, and Mansor (2014) observe a growing trend towards virtual classrooms, e-learning, and blended learning as preferred delivery modes. Approximately half of the courses offered in Malaysian higher learning institutions are online, with students and instructors alike finding online courses appealing and effective, according to Norazah, Mohamed Amin, and Zaidan (2011), as cited by Grapragasem et al. (2014). While blended learning is generally perceived as practical, motivating, supportive, and flexible, it may not suit all students, especially low achievers, as pointed out by Owston et al. (2013). Thus, administrators should offer students the option to enroll in fully face-to-face or blended courses to accommodate varying needs. Moreover, Sabri et al. (2010) caution that the blended component may not be suitable for all courses, suggesting alternative options for students, particularly for challenging courses.

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ROLE OF TECHNOLOGY ON TEACHING-LEARNING METHODOLOGY

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Abstract - Modern technology has been changing today. It was God's gift for every learner. We know that technology can be used to efficiently teach, learn, and improve our teaching, in all Spheres of life, technology plays an important role. It is also an integral part of the teaching-learning process.
Keywords: Modern technology, ICT tools, online platform, Integration technology.

INTRODUCTION

Technology can be defined as something that makes life comfortable. In today's modern era, it can be considered everything with the help of which we can do any of our tasks relatively easily and quickly. In this way, it can be said that technology is a suffix, which is related to each device that can complete any task in a relatively short time and with reduced effort, making it simple and easy. The use of technology in education is also an example of this. The devices or systems that make the teaching and learning process smooth, interesting, and enjoyable and the use of which makes learning easy and long-lasting are called education technologies. In the current scenario, technology is integrated into the teaching-learning process at different levels. At this point, it is necessary to know some general things about the use of technology. The content can be broadened by the use of technology. With the help of technical methods, the pre-determined objectives of learning can be achieved effectively and in reduced durations. Using technology, learners can be allowed to learn according to their interests and can be helped in evolving academically. Using technology, a learner can be inspired to learn by action automatically even in the absence of a teacher, hence appropriate learning situations can be created using technology. Adequate reinforcement can be provided to learners using technology as corrective guidance is available on the spot and feedback channels are aptly deployed in the learning algorithms. In this paper, we will explore the use of technology in the teaching-learning process. For the use of technology in small group teaching, attention is given to the entire schematic of the teaching-learning process and it is prepared in advance by the attainment of specific objectives; the entire process is conducted sequentially by choosing the appropriate technique. Considering the number of learners, learning can be made more effective.

MODERN TOOLS AND TECHNIQUES USED FOR EDUCATION

A variety of digital aids listed below have contributed significantly to disrupting the education space which provides a varied experience to both, the learners and the teacher: Online Platforms: Various online platforms like WebEx, Google Classroom, Zoom, Microsoft Teams, GoToMeeting, Go To Webinar, etc., are being used in the education sector, though, it cannot be denied that the use of these platforms has increased during Covid-19. Most of the online education is being imparted using these online platforms. Video Conferencing and Teleconferencing: Through these, the opinion of the expert located in any other corner of the world on any subject can be obtained through a visual or audio device in the classroom itself. A learning group can also use them to share their learning experiences with another group. Impact of Technology on Teaching-Learning in Higher Education 295 Electronic Board: These days, electronic boards and smart classrooms are becoming very popular in place of traditional blackboards in schools and colleges. Through this, the study material is presented in both, visual and audio forms through pictures. Computer and Internet: Human efforts have been considerably reduced by the help of available computers and allied software in the teaching spectrum. By this, even the most elaborate and complicated works are completed in a very short time. At the same time, the internet is a storehouse of unfathomable information with the option of retrieving information at any given point in time. In any corner of the world, information related to any event or new invention is made available to everyone, at the very next moment. Mobile Phones: Nowadays, mobile phones are also used as teaching aids. On a smartphone, learners can get guidance by searching the literature related to any problem on the internet. In this way, learners can use mobiles in most teaching curriculums, especially relevant for small groups with student numbers between 2 to 30. As the number of learners in a small group teaching is limited, the teacher can also easily monitor the activities of the learners.

Projectors: Projectors can also be used effectively in small-group teaching. Various pictures, graphs, videos, etc., related to a subject matter can be presented in a group with the help of a projector enabling learning through visual aids for complex subjects. Learners can also submit their work reports through the projector. Doordarshan and Radio: Doordarshan and Radio also broadcast educational programs through their various

broadcasting centers. Through these programs, learning is made more effective and interesting by including knowledge in the process of teaching and learning. Data Recorders: Data recorders may compile the required information and opinions of subject matter experts in audio form and can be reproduced and submitted as and when required, as done nowadays by various agencies like SWAYAM, Coursera, etc. Complicated Instruction: This instruction process is an innovative technique suggested by B.F. Skinner. It is of two types, linear and branching. Through this, the content is presented in such a way that learners can continue learning even in the absence of the teacher.

USE OF TECHNOLOGY IN CO-LEARNER TEACHING

In the co-learner learning method, teaching is done by one learner from the learner group to the other learners of the group. This type of teaching-learning process can include the following techniques: Visual and Audio Technology: To make the content exciting and to give learners a perspective related to the content, visual material like DVD, YouTube webcam, etc., can be used. Audio material in the form of radio, tape recorder, etc., can also be used in the classroom by a teacher. Use of Devices like Computer, Mobile, Tablet, etc.: Co-learner learning is a form of small group teaching. In this also, the teaching-learning process is done in small groups only. Therefore, to understand the subject matter more deeply, computers, mobiles, tablets, etc., can also be used. Learners also get online opportunities to learn from their co-learners through remote means as well. Many software programs are also available for the management of co-learner learning, which can be used by the co-learner teacher to facilitate the learning process. Aiding and taking computer-based assessments linked to co-learner learning, the feedback is received regularly and helps in effective learning (Wittenburg and Mcbride, 1998). Impact of Technology on Teaching-Learning in Higher Education 297 It is necessary to pay attention to some things before the use of technology in the co-learner learning process. These can be explained by the following points: It is necessary to the place where the teaching learning process is done and where technology is available. Of the available techniques, the co-learner teacher technique becomes proficient in using certain techniques. If they do not know how to use technology, then they must get trained for it. The selection and use of technology should be by the subject matter. The learner teacher should also be trained on which phase of the teaching-learning process will be used (Kamens, 2007). In co-learner learning, technology can be used by incorporating the following organizational dimension: Interaction: The activity-oriented opportunities are provided to the learners in a technology-based activity. They interact before, during, or after the presentation. This plan should also be made by the learner teacher together with the teacher (Hansen, 2020). In case the teaching has to be done in one institution or any other institution, necessary video and teleconferencing should be arranged in advance (Stai, 2020).

USE OF TECHNOLOGY IN COLLABORATIVE LEARNING

In a collaborative learning situation, learners form small groups and interact with the help of content, thus building knowledge. The attitude and skills that learners develop while interacting with their peers are also beneficial in their future lives. Various technologies such as audio-visual equipment, computer-based learning, mobile, tablet, electronic board, etc., can be used in collaborative learning. This should be ensured when teachers form learner groups for collaborative learning. If some of the learners who are included in each group know the technology used, then there should be some learners who do not know about the technology used. In this way, they will be able to get learning by connecting the course with technology (Lipponen and Lallimo, 2004). Learners should be imparted training on various cooperative skills such as asking for help, giving suggestions and feedback, positively adopting suggestions, humility and delaying differences, etc. Learners enjoy learning more when they use these skills in a technology-based environment (Fu and Hwang, 2018). Groups of learners should be encouraged to ask for help from their group members first on a problem. If the problem is not solved by the group members, then help should be sought from members of other groups. Assistance should be provided by the teacher at the end so that autonomy can be achieved by all the members of the group in the use of the technique (Alavi and Dufner, 2005). 298 Envisioning Business for a Better Tomorrow: Innovate, Integrate, Impact Interaction between learners should be encouraged continuously during technology-based activities in collaborative learning. When the learners are listening to an online lecture or reading any subject material, a separate time should be set aside to discuss it (Resta and Laferrière, 2007). In collaborative learning, the teacher should also ensure that all the members of the group get equal opportunities in the use of whatever technology is being used. Learners should be encouraged to make and submit their reports through computer or other such mediums.

USE OF TECHNOLOGY FOR BETTER GROUP DISCUSSIONS

Group discussion is a powerful means of active learning. A well-organized group discussion allows the participants to discover new ideas and evaluate the views of other participants. Through the group discussion method, learners develop understanding and their subject matter knowledge also increases. The group discussion

method is also helpful in increasing learners' self-confidence (Cuban, 1986). Fig. 1.2: Techniques for Group Discussion Method Electronic Discussion Boards: Properly guided electronic discussion boards provide opportunities for learners to make rich connections in the classroom. A question is written by the teacher on the electronic discussion board and the rest of the learners write their thoughts related to that question on the electronic discussion board (Cartwright, 2000). Impact of Technology on Teaching-Learning in Higher Education 299 Mobile Devices: Mobile devices such as smartphones, tablets, notebooks, and computers provide opportunities for learners to participate in group discussions. Some learners in the group who feel hesitant to express ideas in the group during normal meetings can express their ideas openly with the help of these tools (Pilkington et al., 2000). Microphone: Microphone can also be used in group discussions so that one person's thoughts can reach everyone. Participants who are provided with a microphone get the opportunity to express their views. In this way, all the participants in the group discussion method can be encouraged to think actively (Krentler and Willis-Flurry, 2005).

USE OF TECHNOLOGY IN GROUP PROJECTS

Group project-based teaching-learning is a dynamic classroom perspective in which learners actively find solutions to a problem. They gain knowledge of the subject matter while facing the challenges of the project (Daniels et al., 2010). This emphasizes the experiential side of learning. Learners learn better what they experience themselves. In collective project teaching-learning, the following techniques can be used by the learners while completing the project: Computer and internet can be used by the learners to find solutions to the problems. Through the internet, they can get information related to any subject. Using the computer, not only can the facts be obtained but they can also be compiled and learners can also prepare their report at the end of the project (Windschitl and Sahl, 2002). Mobile, tablet, etc., can also be used by learners to find a solution to a problem. DVD for compilation of sound and pictorial facts along with that tape recorder can also be used. A computer or projector etc. can also be used to present reports etc., in groups (Sadik, 2008).

USE OF TECHNOLOGY IN PSEUDO AND GAME-BASED LEARNING

In pseudo and game-based methodology, teaching-learning is made by making the process enjoyable by playing (Drumm, 2019). A virtual environment is created for teaching-learning in a pseudo and game-based situation that the learners find relevant. Pseudo and sports-based learning are also inspiring because learners can understand the relationship between the learning experience and real-life (Acquah et al., 2020). This type of learning requires effective interactive experiences for which many types of games have been developed. Teachers can use these games in their classroom to build knowledge in the 300 Envisioning Business for a Better Tomorrow: Innovate, Integrate, and Impact learners by playing the classroom in the shape of real life (Ferdinand et al., 2005). Computer and video games are used in pseudo and game-based learning. Through these computer-based games, the learning process is benefited in many ways. Motivation for learning is provided to learners by teaching and playing-based learning. In these games, the content is presented to the learners as a challenge, so that they are motivated internally to play these games with more interest (Tang and Hanneghan, 2011). Through computer-based games, the tendency of learners to search is encouraged. Computer-based games reduce the dangers present in real learning for learners. For example, while teaching chemistry, the danger of using the wrong chemicals is reduced in learning through these computer-based games (Hooshyar et al., 2016). Through computer-based games, the learners experience the real conditions of life in advance. It is also possible to emphasize a particular fact of learning through computer-based games. The fact that needs to be emphasized is made mandatory in computer-based games. Computer-based games provide challenging learning to learners, which increases their confidence level and they can solve real-life challenges as well. Learners are also given opportunities to think through computer-based games (Galvis Guerrero, H.A., 2011). Through computer-based games, learners have to choose the best among the options available. Therefore, selective abilities are also developed in the learners through computer-based games.

CONCLUSION

The present era is the era of technological advancements. Today's generation prefers and relies on E-resources. Normal blackboard and teacher-directed classrooms are now considered old-fashioned techniques. The utilization of available technological tools in both digital and social spaces can deeply impact the teaching-learning. The complete process of devising the curriculum or framework is based on the developmental needs of the target audience and uses various tools and tricks to complement the basic cause of education and knowledge building. The process thus impacts the learning process in a manner that each learner is taught by one of the learners of the group hence developing leadership credentials in the overall personalities of the learners. This type of teaching-learning process involves the use of equipment such as visual and audio technology, computers, mobiles, tablets, etc. Learners online also get opportunities to learn from their co-learners through remote means. Many software-based learning tools are also available for facilitating co-learner education, which can be

used by the co-learner teacher to facilitate the teaching process. In a collaborative learning situation, learners form small Impact of Technology on Teaching-Learning in Higher Education 301 groups interact with the subject matter and build knowledge. For teachers' learning, when the teachers form groups for collaborative learning, it should be ensured that some of the learners who are included in each group know the technology that is used. In collaborative learning, the teacher should also ensure that all the members of the group should get equal opportunities in the use of whatever technology is being used. Group discussion is a powerful means of active learning. Through the group discussion method, learners' understanding develops and their subject matter knowledge also increases. The group discussion method is also helpful in increasing learners' self-confidence. Electronic discussion boards, mobile devices, and microphone group discussion methods can be made effective. Group project-based learning is a dynamic classroom room perspective, in which learners actively find solutions to a problem. They gain knowledge of the subject matter while facing the challenges of the project. This emphasizes the experiential side of learning. Learners learn better when they are put in a situation where they experience the situations by themselves. In pseudo and game-based teaching, the process of teaching-learning is made easier by making the learning process enjoyable. A virtual environment is created for teaching-learning in a pseudo and game-based situation that the learners find relevant. Pseudo and sports-based learning is also inspiring because learners can understand the relationship between learning experiences and real-life situations. There is no doubt that the use of technology in the education sector is going to increase in the future. More and more online platforms will be used for teaching and learning as technology further invades educational processes. The teachers and learners are going to be immensely benefitted by the use of technology in education.

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A REVIEW ON SIGNIFICANCE OF MODERN TECHNOLOGY IN TEACHING AND LEARNING PROCESS IN HIGHER EDUCATION

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Abstract - Modern technology has revolutionized the teaching and learning process, bringing about various components that have enhanced the overall educational experience. One of the key components is the use of multimedia, which includes interactive videos, animations, and simulations that provide a more engaging and immersive learning environment. Another important component is online learning platforms, which allow students to access course materials, participate in discussions, and submit assignments from anywhere at any time. The integration of virtual reality and augmented reality has also opened up new opportunities for hands-on learning experiences, especially in fields such as science and engineering. Additionally, technology has enabled teachers to personalize the learning experience for students through adaptive learning software and data-driven analytics.
Keywords: Interactive videos, virtual reality, augmented reality, data driven analytics etc.

INTRODUCTION

This not only caters to the individual needs of students but also helps teachers track their progress and provide targeted support. Furthermore, the use of educational apps, gamification, and social media has made learning more fun and interactive, keeping students engaged and motivated. Overall, the incorporation of modern technology in the teaching and learning process has transformed traditional methods, making education more accessible, dynamic, and effective. Modern technology has revolutionized the way teaching and learning takes place in classrooms. The components of modern technology have made education more interactive and engaging for students, and have also made it easier for teachers to deliver their lessons effectively. One of the key components is the use of multimedia tools such as projectors, interactive whiteboards, and tablets, which allow teachers to present information in a visual and dynamic manner. Another important component is online learning platforms, which provide students with access to a vast array of educational resources and allow for remote learning. Additionally, modern technology has also enabled the use of virtual and augmented reality, which brings real-life scenarios into the classroom, making learning more immersive and practical. Furthermore, communication tools such as video conferencing and messaging apps have made it possible for students and teachers to stay connected outside of the classroom and facilitate collaboration and discussion. Overall, these components of modern technology have transformed the traditional teaching and learning process, making it more efficient, interactive, and accessible for both students and teachers.

HISTORY

As we all are now living in a digital age and the learners of today's generation have different needs and requirements. The learning must not be limited to the classroom only; it must be confined outside the classroom also. Digital technology has the potential for making a substantial contribution to enriching education for all areas of Curriculum that strives for Excellence. If the technology is effectively used, it will result in enhancing the teaching and learning by digital technology (Edinburgh, 2016). In our day-to-day life, the advancement of technology is increasing all over the world and in everyone's life. Many jobs were not having any requirement of technology but now are in dire need of technology (Costley, 2014). Many individuals are using technology in their daily routine of life. The individual's day starts with their alarm on the phone and ends up with what's app messages. Many Youngsters feel happy and satisfied to make use of technology and due to this, we can integrate technology in education for making the teaching-learning process systemic and efficient so that the learners can learn in a good and happy mood. Technology has originally come from the Greek word techno logia. The word techno logia became technology and it comes into existence. The word was used in the seventeenth century for the first time. Many people think that the word technology only means that the mobile, internet computer, laptop etc. They further believe that technology is nearby to them, the growth among them like new languages, the building of new websites and the new creativity in the field of computers that is only the technology. But if we talk about the proper meaning of technology, it means the scientific knowledge that can be used for solving many practical problems especially in the field of commerce and industry. Various types of materials and methods are being used for solving the practical problems that denote that the technology is not restricted to computer and internet only. It is much wider than that. The satellite and switchboards in our houses are also a part of technology. Technology Changes because the needs and requirements of human beings are unlimited.

The rapid evolution of the internet in the 1990s brought about a new era of online learning, with the creation of virtual classrooms, e-learning platforms, and massive open online courses (MOOCs). These technological advancements democratized education and provided learners with unprecedented access to a wealth of educational resources. The rise of mobile technology in the 21st century led to the development of educational apps, digital textbooks, and personalized learning platforms, enabling students to learn anytime, anywhere.
Today, modern technology continues to transform teaching and learning practices, with the widespread adoption of learning management systems, video conferencing tools, and artificial intelligence in education. These innovations have not only enhanced the learning experience for students but have also empowered educators to create more interactive and engaging lessons. As technology continues to evolve, its impact on education is likely to grow, shaping the future of teaching and learning in profound ways. In the current educational landscape, modern technology plays a pivotal role in transforming teaching and learning practices. With the ubiquitous presence of devices such as laptops, tablets, and smartphones, educators have integrated various digital tools and platforms into their pedagogical methodologies. Learning management systems (LMS) like Canvas and Moodle have become essential for organizing course materials, facilitating online discussions, and assessing student progress.

FUTURE ASPECTS

The use of modern technology in teaching and learning has revolutionized the education system, making it more efficient, interactive, and accessible. With the integration of technology in classrooms, students are able to learn at their own pace, using various multimedia tools and resources. This allows for a personalized learning experience, catering to individual needs and learning styles. Moreover, technology has made learning more engaging and interactive through the use of interactive whiteboards, educational apps, virtual and augmented reality tools. In addition, online platforms and virtual classrooms have provided flexibility for students to access educational materials and resources from anywhere, at any time. This has also opened up opportunities for distance learning and remote education, breaking down geographical barriers. Furthermore, technology has enhanced collaboration and communication among students and teachers by providing various platforms for online discussions, group projects, and feedback. Overall, the use of modern technology in teaching and learning has transformed the traditional methods of education, creating a more dynamic and inclusive environment for students to learn and thrive.

CONCLUSION

One of the most significant aspects of this transformation is the use of various instruments and devices, which have made the entire process more efficient and effective. These instruments include smart boards, tablets, laptops, and educational software, among others. Smart boards, for instance, allow teachers to display content in an interactive manner, making it easier for students to grasp complex concepts. Tablets and laptops provide students with access to a vast amount of information and resources that aid in their learning. Furthermore, educational software such as virtual simulations and online learning platforms offer students a more hands-on and engaging learning experience. In summary, these instruments have enhanced the teaching and learning process by providing students with a more dynamic and interactive learning environment. They have also made it possible for teachers to employ innovative teaching methods that cater to individual learning needs, resulting in improved academic outcomes.

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IMPORTANCE OF ICT TOOLS (SHOD GANGA) IN RESEARCH

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Abstract - India is a developing country, hence there are immense possibilities of research in many fields here. Research work has been done here in various fields for many years. The Government of India has kept the literature of these research works in a platform called Shodh Ganga created by the University Grants Commission. It contains a collection of many research thesis and research papers. Shodh Ganga is an online electronic repository of research theses of India. INFLIBNET Centre has established it. According to an order of the University Grants Commission in June 2009, it has been made mandatory for university researchers to submit their theses in electronic form.
Keywords- Shodh Ganga, UGC, INFLIBNET, Thesis, Literature.

Introduction

Research work has been going on in India since ancient times, whose literature is stored in many research institutions, but in the present time, this literature can be used in innovation, through which solutions to many basic problems of India can be found. Theses and dissertations are known to be a rich and unique source of information, often the only source of research work that does not find its way into various publication channels. Theses and dissertations remain an untapped and under-utilized asset, leading to unnecessary duplication and repetition that, in effect, is the anti-theses of research and waste of huge resources, both human and financial. The UGC Notification (Minimum Standards & Procedure for Award of M.Phil. / Ph.D. Degree, Regulation, 2009) dated 1st June 2009 (Appendix I) provides the mandate for submission of electronic versions of theses and dissertations by the researchers in universities intending to facilitate open access to Indian theses and dissertation to the academic community world-wide. Online availability of electronic theses through centrally maintained digital repositories, will not only ensure easy access and archiving of Indian doctoral theses but will also help in raising the standard and quality of research. This would overcome the serious problem of duplication of research and poor quality resulting from the "poor visibility" and the "unseen" factor in research output.

Information and Communication Technology (ICT)

ICT or Information and Communication Technologies or ICT refers to such technologies that provide us access to the vast body of knowledge through telecommunications. This may include a wide range of communication technologies like the internet, wireless networks, cellular phones, and other modes of communication. Undoubtedly, information and communication technologies have gifted our society with an extensive range of dynamic communication modalities that enabled our people to communicate in Realtime especially with others inhabiting far-off countries through such technologies as instant messaging, voice-over IP, Video Conferencing, and teleconferences. Social networking sites like Facebook, Twitter, and Instagram allow users across the globe to establish contact with one another frequently and with considerable warmth and comfort. We can say that ICT serves as the base of modern computation, which engineered the most modern form of virtual communication and dialogue. Though it is quite difficult to find one universal definition for ICT, we generally take the coinage to mean all those apparatus, devices, network-related configurations, applications, and system rubrics that grossly account for individuals and government or corporate bodies, that work in unison as stakeholders to interact themselves or to enable interaction in a digitized world. While talking of the nitty-gritty of an ICT system, it must be said that it consists of both the wired and the wireless networks. At the same time, it would also imply the existence of near-archived technologies like landline telephones, radio, and televisions. Though updated as they may have become, their use has not become redundant for we still use them in the automated world today, perhaps in an altered version alongside the contemporary artificial intelligence and robotic technology. The list of ICT constituents can be exhaustively long for it keeps adding to one after the other and just, for instance, our smartphones, digital devices, and robotic systems are just a few additions to the existing ones. ICT, in short, is the technological arrangement made to expedite the process of interaction or social communication among individuals, groups, or organizations in the digital age. In short, ICT, therefore, is an all-encompassing term that covers all and every device, system, or application that ranges from radio, television, digital phones, computers, both hardware and software networks, satellite coverage; and at the same time various applications, systems, and services related to them such as video-calling and distance education. Along

with ICT came the age of the ubiquitous 'digital divide' for it brought along with it a notorious gender gap in the society riding on the tide of socioeconomic factors which tore the society apart. ICT has increasingly been used as an initiator for higher education since the 1990s. A decade ago we spoke of technical and vocational education as well as training the teachers. It was only in the late 1990s that we could see a change and this was reflected in the wider world.

Shodh Ganga

"Shodh Ganga" is the name coined to denote the digital repository of Indian Electronic Thesis and Dissertations set up by the INFLIBNET Centre. The word "Shodh" originates from Sanskrit and stands for research and discovery. The "Ganga" is the holiest, largest, and longest of all rivers in the Indian subcontinent. The Ganga is the symbol of India's age-long culture and civilization, everchanging, ever-flowing, ever-loved, and revered by its people, and has held India's heart captive and drawn uncounted millions to her banks since the dawn

The Shodhganga@INFLIBNET is set up using an open-source digital repository software called D Space developed by MIT (Massachusetts Institute of Technology) in partnership with Hewlett-Packard (HP). The D Space uses internationally recognized protocols and interoperability standards. Shodh Ganga provides a platform for research scholars to deposit their Ph.D. theses and make them available to the entire scholarly community in open access. The repository can capture, index, store, disseminate, and preserve ETDs (Electronic Theses and Dissertations) submitted by the researchers.

Shodh Ganga replicates the academic structure of each University in terms of Departments/Centres/ Colleges each University has to facilitate ease of navigation. This structure facilitates research scholars from universities to deposit their theses in the respective Department / Centre / College the Centre is also developing a semantic web-based interface to facilitate subject-based browsing, navigation, search, and retrieval of content available in the repository.

Aim of Shodh Ganga

The UGC vide its Notification (Minimum Standards & Procedure for Award of. Phil. / Ph.D. Degree, Regulation, 2009) dated 1st June 2009 provides for submission of electronic versions of theses and dissertations by the researchers in universities in Shodh Ganga maintained by the INFLIBNET Centre. Universities that sign MoU with the INFLIBNET Centre and mandate submission of electronic versions of their theses and dissertations to Shodh Ganga may get financial assistance from the UGC for digitizing their back-files of theses. Besides, UGC may also provide financial assistance to the INFLIBNET Centre for subscription to software tools that detect plagiarized portions of theses and dissertations. Access to software designed to detect plagiarism will be provided to universities that sign an MoU with the INFLIBNET Centre for Shodh Ganga. In time to come, ETDs will become more commonplace, and grant-giving agencies and accreditation bodies like AICTE, UGC, and NAAC will make judgments regarding innovative universities by taking note of their initiatives such as ETDs

and IRs. software tools are now available to detect and deter plagiarism. The increased visibility of these dissertations through open-access repositories would further act as a deterrent to plagiarism. Moreover, it will attract other organizations in India and abroad to collaborate with Indian universities on topics of mutual interest. Besides, the availability of a formidable number of theses through a single repository would facilitate the INFLIBNET Centre to launch alerting and analytical services deploying data mining and other technology tools. Furthermore, Plagiarism is a major concern in research, resulting in poor-quality of research. Proper

SHODHGANGA@INFLIBNET CENTRE

As per the Regulation, the responsibility of hosting, maintaining, and making the digital repository of Indian Electronic Theses and Dissertations (called 'Shodh ganga'), accessible to all institutions and universities, is assigned to the INFLIBNET Centre by UGC. Shodh Ganga stands for the reservoir of Indian Intellectual output stored in a repository hosted and maintained by INFLIBNET Centre. Shodh Ganga replicates the academic structure of each University in terms of Departments / Centres and Colleges each University has to facilitate ease of navigation. The structure also facilitates research scholars from universities to deposit their theses in the respective Department / Centre / College. 3.

OBJECTIVES

The objectives of the scheme are to provide financial assistance for i) Providing access to Indian theses and dissertations in open access to the worldwide academic community; ii) Setting up ETD Laboratory in eligible universities; iii) Extending access to the anti-plagiarism software package in member universities; and iv) Funds for digitization of back lists of theses available in universities. 4.

TARGET

All Universities that conduct PhD or MPhil programs are eligible to join Shodh Ganga by signing an MoU with INFLIBNET Centre. However, universities covered under Sections 2(f) and 12(B) of the UGC Act are eligible for financial assistance from UGC within the framework of norms and broad outlays specified by the UGC for (I) Setting up of ETD Lab; (ii) Digitizing back-files of theses; (iii) Subscription to anti-plagiarism software to detect plagiarized portion of theses and dissertations; and (iv) Any other items identified by the Committee set-up by the UGC for the purpose. The criteria for allocation of grants to universities will be ascertained by the Committee appointed for this purpose to promote electronic submission of theses and dissertations in universities. Allocation of funds to a university for digitization of theses, the establishment of ETD Lab. or any other benefits decided by the UGC on a later date would vary from university to university based on the following criteria: i) Universities covered under Sections 2(f) and 12(B) Sections of UGC Act and have signed MoU with the INFLIBNET Centre for Shodh Ganga; ii) Universities wherein at least 10 theses are submitted every year; iii) Universities with at least 100 theses submitted to in past years would qualify for getting funds for digitization of old volumes of theses;

National Digital Library (NDL), NPTEL, and Shodh Ganga: ICT Empowerment of Indian Libraries

The landscape of Indian libraries has witnessed a profound transformation through initiatives such as the National Digital Library (NDL), the National Programme on Technology Enhanced Learning (NPTEL), and other related projects. These endeavors have leveraged Information and Communication Technology (ICT) to democratize access to knowledge, enhance educational resources, and redefine the role of libraries in the digital era.

[1] National Digital Library (NDL): Launched in 2016, the NDL is a flagship project under the Ministry of Education, Government of India. It aims to provide single-window access to a vast array of digital resources, encompassing books, articles, videos, audio recordings, and other multimedia materials. With an emphasis on inclusivity, the NDL addresses linguistic diversity by offering content in multiple Indian languages. By promoting open access and collaborative content creation, the NDL has become a valuable resource for students, researchers, and educators across the nation.

[2] National Programme on Technology Enhanced Learning (NPTEL): NPTEL, initiated in 2003, is a collaboration between the Indian Institutes of Technology (IITs) and the Indian Institute of Science (IISc). Through online video lectures and course materials, NPTEL offers high-quality educational content in engineering, technology, and related disciplines. These resources empower learners across India to access world-class education from renowned institutions. NPTEL has played a pivotal role in bridging gaps in higher education and fostering a culture of lifelong learning.

[3] Shodh Ganga and Shodh Gangotri: These projects focus on digitizing and providing open access to Indian theses and dissertations. Shodh Ganga aims to create a repository of electronic theses and dissertations from universities across India, promoting research visibility and accessibility. Shodh Gangotri, on the other hand, serves as a platform for research scholars to deposit their synopses for theses, making research proposals available for feedback and collaboration.

[4] e-PG Pathshala: This initiative provides high-quality postgraduate-level content in diverse disciplines through online e-content. Developed by the Consortium for Educational Communication (CEC), e-PG Pathshala aims to supplement traditional classroom teaching with digital resources, enhancing the learning experience for students pursuing postgraduate degrees.

Conclusion

India does not have a central repository in which these are stored from various PhDs across different disciplines. This has led to various kinds of problems from lack of visibility for Indian research to duplication, repetition, and even plagiarism in some cases. Most countries have created an online central database where universities as well as researchers post their theses and dissertations. With the proliferation of the Web, this has become a global showcase of the research capabilities of each country. Electronically published Theses & Dissertations make the results known nationally and internationally and ETDs can identify and connect national and international research groups. The Shodh Ganga initiatives started in India the popularity of this concept is growing rapidly in higher educational and research institutions as a method to disseminate newly emerged knowledge and expertise. Shodh Ganga repositories can expose the intellectual output of the country to a wider audience with the help of the internet**.**

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अध्ययन एवं अध्यापन में डिजिटल पुस्तकालय का महत्व

ममता सोलंकी
पुस्तकालय सहायक

प्रस्तावना –

पुस्तकालय वह स्थान या सामाजिक संस्था है जो उपयोगकर्ताओं की शिक्षा शोध सूचना संप्रेषण मनोरंजन तथा उनके बौद्धिक एवं नैतिक उत्थान में महत्वपूर्ण भूमिका निभाता है। पुस्तकालय का विकास मानव सभ्यता के विकास के साथ–साथ हुआ है सदियों से मानव अपने द्वारा अर्जित ज्ञान को भावी पीढ़ी के लिए पुस्तकालय के माध्यम से सुरक्षित करता आ रहा है आज के आधुनिक युग में समाज में समस्त क्रियाकलापों का संपादन डिजिटल माध्यम द्वारा ही किया जा रहा है शिक्षा के क्षेत्र में डिजिटल ग्रंथालय एक अत्यंत महत्वपूर्ण कड़ी है।

डिजिटल ग्रंथालय का अर्थ –डिजिटल पुस्तकालय एक ऐसा पुस्तकालय होता है जहां संग्रहो का भंडारण डिजिटल या इलेक्ट्रॉनिक प्रारूप में किया जाता है तथा इनका उपयोग डिजिटल माध्यम जैसे कंप्यूटर लैपटॉप तथा एंड्राइड मोबाइल द्वारा किया जा सकता है। डिजिटल ग्रंथालय में उत्तर की सॉफ्ट कॉपी को सीडी फॉर्मेट में सेव किया जाता है इसके जरिए इंटरनेट मैगज़ीन आर्टिकल बुक्स पेपर साउंड फाइल्स और वीडियो आसानी से देखे जा सकते हैं डिजिटल ग्रंथालय को वर्चुअल ग्रंथालय के नाम से भी जाना जाता है।

शिक्षा में डिजिटल पुस्तकालय का महत्व– आज के आधुनिक युग में विद्यार्थी और ज्ञान कर्ताओं के लिए डिजिटल पुस्तकालय एक अत्यंत महत्वपूर्ण भूमिका निभाता है डिजिटल पुस्तकालय ऐसा पुस्तकालय होता है जहां फिजिकल रूप से जाने की आवश्यकता नहीं होती है डिजिटल पुस्तकालय का उपयोग विद्यार्थी 24 घंटे 365 दिन किसी भी समय अपने कंप्यूटर लैपटॉप या अपने मोबाइल से करके अपने अध्ययन संबंधित जानकारी आसानी से प्राप्त कर सकता है। किताबों के शौकीन लोगों के लिए ऑनलाइन अर्थात की लाइब्रेरी किसी उपहार से काम नहीं है डिजिटल लाइब्रेरी द्वारा ई कंटेंट की पहुंच बढ़ाने के लिए नेशनल डिजिटल लाइब्रेरी स्थापित की गई यह डिजिटल लाइब्रेरी देश की शिक्षा नीति के उद्देश्यों के भी अनुरुप हैं।

डिजिटल लाइब्रेरी का उद्देश्य शिक्षण संस्थानों विद्यार्थियों शिक्षकों और शोधार्थियों को एक व्यापक डिजिटल शिक्षण सामग्री उपलब्ध कराना है। ई लाइब्रेरी कई विषयों में पुस्तक संग्रह और डिजिटल सामग्री की एक विस्तृत श्रृंखला प्रदान करती हैं। भारत का राष्ट्रीय डिजिटल पुस्तकालय ऑफ इंडिया एक राष्ट्रीय ज्ञान संपदा है जो समस्त ई लर्निंग को पूरा करने में सक्षम है। यह शिक्षा के लिए भारत का सबसे बड़ा डिजिटल पुस्तकालय हैं जो भारत सरकार के शिक्षा मंत्रालय के साथ मिलकर तैयार किया गया है यहां प्राइमरी से लेकर पोस्ट ग्रेजुएट तक की किताबों का 10 भाषाओं में संकलन है जो सभी के लिए निशुल्क उपलब्ध है।

अध्ययन एवं अध्यापन में डिजिटल पुस्तकालय की उपयोगिता एवं लाभ –अध्ययन के क्षेत्र में डिजिटल पुस्तकालय एक कुंजी के रूप में कार्यकर्ता है डिजिटल पुस्तकालय का प्रयोग करके उपयोग करता है किसी भी समय अपने ज्ञान की प्राप्ति को पूरा कर सकता है।

डिजिटल पुस्तकालय उपयोगकर्ताओं को एक क्लिक पर शक्तिशाली खोज उपकरण प्रदान करती हैं जिसके द्वारा अध्ययन करता तुरंत अपनी सुचना प्राप्त कर सकता है ।डिजिटलीकरण करके डिजिटल लाइब्रेरी यह सुनिश्चित करती है कि ई संसाधन दुनिया भर के शोध करताओ और छात्रों के लिए निशुल्क उपलब्ध है शिक्षा के क्षेत्र में डिजिटल पुस्तकालय के महत्व को कम नहीं आका जा सकता है भारत के नेशनल डिजिटल लाइब्रेरी सीखने के संसाधनों का एक आभासी भंडार है

यहां सभी कक्षाओं की ऑनलाइन पढ़ाई का पूरा पाठ्यक्रम और कोर्स उपलब्ध है। नेशनल डिजिटल लाइब्रेरी पाठकों के लिए एक नई सुविधा प्रदान करने जा रही है जिसका नाम है आस्क द क्वेश्चन यानी सवाल पूछो सुविधा।

इसमें छात्र अपना कोई भी कठिन सवाल पूछेंगे जिसका जवाब नेशनल डिजिटल लाइब्रेरी आफ इंडिया द्वारा विशेषज्ञ ऑडियो या वीडियो के माध्यम से देंगे। इस सुविधा का लाभ ई लाइब्रेरी का प्रयोग करने वाले सभी पाठकों को मिलेगा जिसके फलस्वरूप उनके शैक्षणिक स्तर में वृद्धि होगी

भारत के प्रमुख डिजिटल ग्रंथालय–

पारंपरिक ज्ञान डिजिटल ग्रंथालय, स्वास्थ्य एवं परिवार कल्याण मंत्रालय भारत सरकार इंदिरा गांधी राष्ट्रीय कला केंद्र, डिजिटल ग्रंथालय नई दिल्ली 'विद्यानिधि डिजिटल ग्रंथालय मैसूर

निष्कर्ष– ई पुस्तकालय डिजिटल ग्रंथालय छात्रों को डिजिटल संसाधनों की विशाल श्रृंखला तक पहुंचने में मदद करता है जिससे विद्यार्थी के शैक्षणिक एवं बौद्धिक स्तर में वृद्धि होती हैं तथा उनके ज्ञान का क्षेत्र व्यापक होता है डिजिटल लाइब्रेरी सुविधाजनक और आसानी से सुलभ है जो शक्तिशाली खोज उपकरण और कम समय में कुशलता के साथ सारी जानकारी खोजने में सक्षम बनाते हैं आज के डिजिटल युग में अपनी शैक्षिक योग्यता में उत्कृष्टता प्राप्त करने के इच्छुक छात्रों के लिए डिजिटल पुस्तकालय एक अत्यंत महत्वपूर्ण संसाधन है।

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अध्ययन और अध्यापन मे तकनीक का उपयोग और प्रासंगिकता

डॉ. मीनाक्षी खरे

सारांश - आज के समय में तकनीकी उपकरणों को अपनाकर शिक्षा व्यापक क्षितिजों को पार कर रही है] बहुआयामी सामाजिक और भविष्य के लिए तैयार शिक्षा का वातावरण बना रही है। प्रौद्योगिकी डिजिटल युग में अध्ययन और अध्यापन को बदलने में महत्वपूर्ण भूमिका निभा रही है] जो नए उपकरणों को उत्प्रेरित कर रही है। आज के समय में तकनीकी ने शिक्षा के क्षेत्र में क्रांति ला दी है] इससे न केवल सीखने की क्षमता में तेजी से वृद्धि हुई है बल्कि शिक्षक और विद्यार्थी के बीच अध्यापन में आधुनिक तकनीक के उपयोग के माध्यम से सीखने के लिए ज्ञान में वृद्धि हो गई है।

शिक्षक विद्यार्थियों को स्मार्ट क्लास रूम] एलईडी और ऑनलाइन क्लास रूम गूगलमीट के माध्यम से अध्यापन करा रहे हैं] शिक्षक और विद्यार्थियों के बीच संचार का महत्व बढ़ गया है, इसके माध्यम से कई फायदे भी हुए हैं] शिक्षकों को तकनीकी के उपयोग में लाने से शिक्षक सामग्री एक बार में तैयार हो जाती है जिसका उपयोग वह हर समय कर सकते हैं] अतः अब सामग्री को बार-बार नहीं बनाना पड़ता है। इसके उपयोग से शिक्षक अधिक प्रभावी ढंग से विद्यार्थियों को पढ़ा सकता है जैसे चार्ट 3डी मॉडल का प्रदर्शन स्क्रीन पर प्रदर्शित करके आदि।

शिक्षक अपने कार्य को सरल और प्रभावी बनाने के लिए विभिन्न प्रकार की शैक्षिक और वैज्ञानिक तकनीक का उपयोग करता है जिससे शिक्षण को अधिक सुलभ और सरल बनाया जा सके।

शिक्षा में प्रौद्योगिकी के सबसे महत्वपूर्ण लाभों में एक सीखने की व्यक्तिगत दर की क्षमता है। प्रौद्योगिकी की मदद से शिक्षक व्यक्तिगत पाठ योजना बना सकते हैं जो प्रत्येक छात्र की विशिष्ट सीखने की शैली, गति और आवश्यकताओं को पूरा करती है] छात्र घर से सभी ऑनलाइन संसाधनों और उपकरणों तक भी पहुंच सकते हैं जो उन्हें अपनी गति से अपने समय पर और अपने पसंदीदा वातावरण में सीखने में सक्षम बनाते हैं।

शैक्षिक तकनीकी के उपयोग से विद्यार्थी शिक्षक की सहायता के बिना भी किताबों और अन्य उपकरणों की सहायता से सीख सकता है।

प्रस्तावना:

जैसे-जैसे हम 21वीं सदी में आगे बढ़ रहे हैं, प्रौद्योगिकी हमारे जीवन के सभी पहलुओं में बड़ी भूमिका निभा रही है। एक क्षेत्र जहां प्रौद्योगिकी का गहरा प्रभाव पड़ा है वह है शिक्षा। K-12 स्कूलों से लेकर विश्वविद्यालयों तक, प्रौद्योगिकी हमारे सीखने और सिखाने के तरीके को बदल रही है।

सबसे पहले और सबसे महत्वपूर्ण, प्रौद्योगिकी ने शिक्षा को और अधिक सुलभ बना दिया है। ऑनलाइन शिक्षण प्लेटफार्मों और शैक्षिक ऐप्स के साथ, छात्र इंटरनेट कनेक्शन के साथ कहीं से भी शिक्षण सामग्री और पाठ्यक्रम तक पहुंच सकते हैं। यह कोविड-19 महामारी के दौरान विशेष रूप से महत्वपूर्ण रहा है, जहां दूरस्थ शिक्षा आदर्श बन गई है।

प्रौद्योगिकी ने शिक्षा को अधिक आकर्षक और इंटरैक्टिव भी बना दिया है। इंटरैक्टिव व्हाइटबोर्ड, आभासी वास्तविकता सिमुलेशन और शैक्षणिक गेम इस बात के कुछ उदाहरण हैं कि प्रौद्योगिकी सीखने के अनुभव को कैसे बढ़ा रही है। ये उपकरण छात्रों को जटिल अवधारणाओं की कल्पना करने और व्यावहारिक सीखने की गतिविधियों में संलग्न होने की अनुमति देते हैं जो पहले असंभव थे।

इसके अलावा, प्रौद्योगिकी ने शिक्षा को और अधिक वैयक्तिकृत भी बना दिया है। कृत्रिम बुद्धिमत्ता और मशीन लर्निंग की मदद से, शिक्षक प्रत्येक छात्र की व्यक्तिगत आवश्यकताओं के अनुसार निर्देश तैयार कर सकते हैं। इसका मतलब यह है कि छात्र व्यक्तिगत प्रतिक्रिया, समर्थन और संसाधन प्राप्त कर सकते हैं जो उनकी सीखने की शैली और गति के अनुरूप हैं।

बेशक, शिक्षा में प्रौद्योगिकी के एकीकरण से जुड़ी चुनौतियाँ भी हैं। उदाहरण के लिए, सभी छात्रों के पास समान स्तर की प्रौद्योगिकी और इंटरनेट कनेक्टिविटी तक पहुंच नहीं है। इसके अतिरिक्त, प्रौद्योगिकी पर अत्यधिक निर्भरता और मानव संपर्क और रचनात्मकता को प्रतिस्थापित करने की प्रौद्योगिकी की क्षमता के बारे में भी चिंताएं हैं।

इन चुनौतियों के बावजूद, यह स्पष्ट है कि आधुनिक शिक्षा में प्रौद्योगिकी की महत्वपूर्ण भूमिका है। शिक्षा को अधिक सुलभ, आकर्षक और व्यक्तिगत बनाकर, प्रौद्योगिकी हमारे सीखने और सिखाने के तरीके को बदल रही है। जैसे-जैसे हम डिजिटल युग की जटिलताओं से जूझ रहे हैं, यह महत्वपूर्ण है कि हम अपनी शैक्षिक प्रणालियों को समर्थन और बढ़ाने के लिए प्रौद्योगिकी का लाभ उठाने के तरीके खोजें।

मेरा मानना है कि प्रौद्योगिकी एक रामबाण औषधि है जो किसी न किसी तरह से शिक्षा में हर बड़ी चुनौती का समाधान करेगी।

कम टेस्ट स्कोर? हम ऐसे अनुकूली कार्यक्रम विकसित कर सकते हैं जो छात्रों को उनके स्तर पर चुनौती दें।

छात्रों को उनके शिक्षकों द्वारा पर्याप्त चुनौती नहीं दी जा रही है? एमओओसी इसका समाधान कर सकते हैं ताकि हर कोई अपनी क्षमता का लाभ उठा सके!

आपके विद्यालय में स्पैनिश/क्रियोल/अरबी बोलने वाले छात्र आते हैं और कोई शिक्षक उनकी मदद नहीं कर सकता? जब तक वे भाषा नहीं सीख लेते, Google Translate उन्हें अनुवाद प्रदान कर सकता है!

ये सभी प्रौद्योगिकियां अविश्वसनीय रूप से उपयोगी हैं लेकिन वे मानते हैं कि एक छात्र आज्ञाकारी और भावनात्मक रूप से परिपक्व और स्वतंत्र/स्व-प्रेरित और महत्वाकांक्षी है।

स्व-प्रेरित छात्र हमेशा सफल होने के रास्ते खोज लेंगे। लेकिन प्रौद्योगिकी अपरिपक्व/जरूरतमंद/अप्रेरित छात्र के लिए क्या कर सकती है?

अब ऑनलाइन सर्टिफिकेट पाठ्यक्रमों का एक नया चलन है जो कुछ धनराशि के लिए पाठ्यक्रम में समृद्ध जानकारी और ज्ञान प्रदान करते हैं, जबकि हार्वर्ड जैसे विश्वविद्यालय ऐसे पाठ्यक्रमों के लिए 10-20k शुल्क लेते हैं, भारतीय विश्वविद्यालय और संगठन बहुत कम शुल्क लेते हैं और मूल्य वर्धित पाठ्यक्रम देते हैं और छात्र अपनी पाठ्यक्रम आवश्यकता के अनुसार चयन कर सकते हैं।

बायजू आदि जैसे ऑनलाइन प्लेटफ़ॉर्म स्कूल जाने वाले बच्चों के लिए व्यापक अध्ययन सामग्री भी प्रदान करते हैं। सुविधा के अनुसार वीडियो चित्रण और कक्षाएं प्रदान करने से छात्रों के लिए अपने व्यस्त कार्यक्रम के बावजूद अध्ययन करना आसान हो जाता है।

प्रौद्योगिकी की आदर्श भूमिका व्यापक और संपूर्ण शिक्षा प्रदान करना है क्योंकि एक उपयोगकर्ता शिक्षा के लिए भुगतान कर रहा है और पाठ्यक्रमों को मूल्यवान/कौशल जोड़ना चाहिए। यह व्यक्ति की प्रेरणा और क्षमता पर भी निर्भर करता है कि वह उस जानकारी को कितना समझ पाता है।

मैंने व्यक्तिगत रूप से ऐसे लोगों/छात्रों को देखा है जिन्होंने प्रौद्योगिकी और इसके द्वारा उपलब्ध कराए जाने वाले संसाधनों की मदद से अपने कौशल सेट के साथ-साथ शैक्षिक योग्यता को भी बढ़ाया है। अंततः यह व्यक्ति की इच्छाशक्ति, प्रेरणा पर निर्भर करता है कि वह तकनीक का उपयोग किस अर्थ में करना चाहता है।

प्रौद्योगिकी हर जगह है--हमारी संस्कृति के लगभग हर हिस्से में जुड़ी हुई है। यह प्रभावित करता है कि हम कैसे रहते हैं, काम करते हैं, खेलते हैं और सबसे महत्वपूर्ण रूप से सीखते हैं। मोबाइल और Laptop जैसे अन्य वायरलेस उपकरणों की आज हर उद्योग में बढ़ती आवश्यकता के साथ, यह केवल समझ में आता है कि हमारे स्कूल भी कक्षा में मोबाइल तकनीक को प्रभावी ढंग से तैनात कर रहे हैं। स्कूलों को कक्षा में मोबाइल प्रौद्योगिकी को अपनाने का आत्मविश्वासपूर्वक निर्णय लेने में मदद करने के लिए यहां 10 कारणों की एक सूची दी गई है:

1. यदि सही ढंग से उपयोग किया जाए, तो मोबाइल डिवाइस और उनके द्वारा समर्थित एप्लिकेशन छात्रों को उनके भविष्य के करियर के लिए तैयार करने में मदद करेंगे।
2. कक्षा में प्रौद्योगिकी को एकीकृत करना सभी शिक्षण शैलियों के छात्रों से जुड़ने का एक प्रभावी तरीका है।
3. यह छात्रों को सहयोग को प्रोत्साहित करके अपने सहपाठियों और प्रशिक्षकों के साथ बातचीत बढ़ाने का अवसर देता है।
4. कक्षा में प्रौद्योगिकी का उपयोग करने से शिक्षकों और अन्य संकाय सदस्यों को अपने छात्रों की डिजिटल नागरिकता कौशल विकसित करने का अवसर मिलता है। मोबाइल उपकरणों का उपयोग करना एक बात है, यह जानना बिल्कुल अलग बात है कि उनका सही और जिम्मेदारी से उपयोग कैसे किया जाए।
5. शिक्षा में प्रौद्योगिकी को एकीकृत करने से छात्रों को व्यस्त रहने में मदद मिलती है। आज अधिकांश छात्र खेलने और सीखने के लिए टैबलेट और स्मार्टफोन जैसे मोबाइल उपकरणों का उपयोग कर रहे हैं क्योंकि वे क्रॉल कर सकते हैं। इसलिए आज की कक्षाओं को उस तरीके से संरेखित करना तर्कसंगत लगता है जैसा आपके छात्र चाहते हैं और सीखने के आदी हैं।
6. पारंपरिक कक्षा निर्देश के साथ वीआर (आभासी वास्तविकता) जैसी नई तकनीक का संयोजन इस बात का एक उदाहरण है कि कैसे नई तकनीक की शुरूआत सीखने के अनुभव को बढ़ा सकती है और नए अवसर पैदा कर सकती है।
7. जब मोबाइल तकनीक आसानी से उपलब्ध है और कक्षा में सही ढंग से काम कर रही है, तो छात्र पहले से कहीं अधिक तेजी से और आसानी से नवीनतम जानकारी तक पहुंचने में सक्षम होते हैं।
8. पारंपरिक निष्क्रिय शिक्षण मॉडल टूट गया है। कक्षा में प्रौद्योगिकी के साथ शिक्षक प्रोत्साहनकर्ता, सलाहकार और प्रशिक्षक बन जाता है।
9. प्रौद्योगिकी छात्रों को अधिक जिम्मेदार बनने में मदद करती है। अपने स्वयं के उपकरण का मालिक होने या स्कूल के उपकरणों को उधार लेने से छात्रों को अपने निर्णय लेने के कौशल में सुधार करने के साथ-साथ एक मूल्यवान (और अक्सर कई बार महंगे) उपकरण का स्वामित्व लेने का अवसर मिलता है। फिर, सर्वोत्तम परिणाम देखने के लिए इसे उचित डिजिटल नागरिकता प्रशिक्षण द्वारा पूरक करने की आवश्यकता है
10. प्रौद्योगिकी सीखने के अनुभव को बदल देती है। छात्रों के पास अविश्वसनीय मात्रा में नए अवसरों तक पहुंच है। कोडिंग सीखने से लेकर टीमों और उनके प्रशिक्षकों के साथ बेहतर सहयोग करना सीखने तक - प्रौद्योगिकी छात्रों को अधिक रचनात्मक होने और अधिक जुड़े रहने का अधिकार देती है। नई तकनीक ने आज हम कैसे सीखते हैं, इसे अत्यधिक प्रभावशाली बना दिया है।

प्रौद्योगिकी शिक्षा में सबसे महत्वपूर्ण भूमिका निभाती है, दुनिया बहुत तेज गति से आगे बढ़ रही है और पलक झपकते ही चीजें बदल रही हैं। जबकि शिक्षा की बात करें तो यह मनुष्य के जीवन में सबसे महत्वपूर्ण चीज है, प्रौद्योगिकी और शिक्षा आजकल एक दूसरे से जुड़े हुए हैं। लोग अपने घरों के अंदर रहने और घर से ही काम/पढ़ाई करने के लिए इसने दुनिया को पूरी तरह से बदल दिया है और विभिन्न चीजों की पारंपरिक परिभाषाओं को बदल दिया है। उनमें से एक है शिक्षा।ने कभी दुनिया भर के विश्वविद्यालय और कॉलेज ऑनलाइन कक्षाएं संचालित कर रहे हैं। इस तरह का कुछ भी संभव होगा, हालांकि दूरस्थ शिक्षा थी लेकिन इसे हेय दृष्टि से देखा जाता था और अब लोग उसी का पालन करने के लिए मजबूर हैं। आज के बच्चे, जिन्हें डिजिटल टॉडलर्स कहा जाता है, इंटरनेट की उपलब्धता के साथ लैपटॉप, टैबलेट और मोबाइल परिवेश में पैदा हुए और बड़े हुए। डिजिटल बच्चे सीमित एकाग्रता के साथ यूट्यूब वीडियो, पीपीटी और स्मार्ट क्लास जैसे ऑडियो-विज़ुअल संचार मोड के माध्यम से सीखना पसंद करते हैं। यहां तक कि शिक्षक भी स्मार्ट क्लास के

माध्यम से अंग्रेजी, विज्ञान, गणित, सामाजिक विज्ञान और अन्य विषयों को ऑनलाइन पढ़ाने का आनंद लेते हैं।

स्मार्ट क्लास सामग्री प्रौद्योगिकी-आधारित शिक्षण और शिक्षा प्रदान करती है। ऑनलाइन स्मार्ट क्लास छात्रों की सहभागिता और रुचि में सुधार सुनिश्चित करती है। डिजिटल सामग्री प्रदाता द्वारा 3डी एनिमेटेड वीडियो, छात्रों का ऑनलाइन मूल्यांकन, ऑनलाइन रिपोर्ट कार्ड और शिक्षक और अन्य छात्रों के साथ इंटरैक्टिव मंच जैसी रचनात्मक सामग्री त्वरित और गहन सीखने को प्रेरित करती है।

इंग्लिश लर्निंग सॉफ्टवेयर पर अंग्रेजी सीखना और सिखाना सभी छात्रों को प्रभावित करता है। डिजिटल सामग्री प्रदाता ने छात्रों की रुचि बढ़ाने के लिए अद्भुत और इंटरैक्टिव अंग्रेजी सीखने के वीडियो और अंग्रेजी सुनने के वीडियो बनाए। अंग्रेजी सीखने के सॉफ्टवेयर में एकीकृत अंग्रेजी भाषा की कक्षा ग्राफिक्स और फिल्मों जैसी स्मार्ट सामग्री के साथ सीखने से छात्रों की व्यस्तता और रुचि बढ़ाती है।

डिजिटल बच्चों की पढ़ाई को बेहतर बनाने के लिए स्मार्ट क्लास सामग्री की कुछ महत्वपूर्ण विशेषताएं इस प्रकार हैं:

पाठ्यक्रम: अतिरिक्त गतिविधियों और प्रयोगों के साथ नवीनतम पाठ्यक्रम से 100% मेल खाता है

सामग्री प्रस्तुति: बुनियादी अवधारणाओं की गहराई से समझ को बेहतर बनाने के लिए 2डी और 3डी एनीमेशन के साथ एचडी ग्राफिक्स और छवियां।

यूजर इंटरफेस: नेविगेशन मेनू के साथ ग्राफिकल यूजर इंटरफेस, उस पर बटनों के उचित स्थान के साथ आसान पहुंच, यह उत्तरदायी होना चाहिए।

प्रयोगशालाएं और गतिविधि: छात्र हमेशा गतिविधियों और प्रयोगों के साथ बातचीत करने में आनंद लेते हैं। इसलिए, प्रयोगशालाओं के लिए एक अलग अनुभाग आवश्यक है।

अंग्रेजी भाषा कक्षा: अच्छा अंग्रेजी संचार कौशल होना हर जगह आवश्यक है। अंग्रेजी भाषा की कक्षा से बोलने, सुनने और लिखने के कौशल में भी सुधार होता है।

आवाज़ का लहजा: शिक्षक की आवाज़ का लहजा छात्रों पर एक शक्तिशाली प्रभाव डाल सकता है। ऑनलाइन या ऑफलाइन पढ़ाते समय शिक्षक वास्तव में अपनी आवाज के स्वर का ध्यान रखते हैं।

प्लग एंड प्ले: सॉफ्टवेयर की आसान स्थापना और उस तक पहुंच। आपकी सामग्री केवल एक क्लिक में उपयोग के लिए तैयार है।

इंटरएक्टिव एप्लिकेशन: रूलर, कंपास, प्रोटेक्टर, त्वरित आकार, कैलकुलेटर और यूनिट कनवर्टर जैसे अंतर्निहित इंटरैक्टिव एप्लिकेशन के उपयोग से शिक्षण कौशल को बढ़ाएं।

निष्कर्ष

प्रौद्योगिकी शिक्षा के क्षेत्र में अभूतपूर्व तरीके से क्रांति ला रही है। शिक्षकों के रूप में, हमें इन तकनीकी प्रगति को अपनाना चाहिए और यह सुनिश्चित करने के लिए काम करना चाहिए कि उनका उपयोग छात्रों की शिक्षा को समर्थन और बढ़ाने के लिए किया जाए। ऐसा करके, हम एक अधिक न्यायसंगत, आकर्षक और प्रभावी शैक्षिक प्रणाली बना सकते हैं जो सभी शिक्षार्थियों की आवश्यकताओं को पूरा करती है।

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