A Study on the Impact of ICT in Higher Education with Special Reference to NEP 2020

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Abstract: The education system of any nation is the basis through which social, economic, industrial, and educational moral development is possible because education makes a person skilful, thoughtful, and knowledgeable, higher education, professional skills, higher production capacity, new knowledge acquisition, and society and society. Youth power enables the world to move towards development, youth power is the most capable and skilled asset of any nation, therefore school education and higher education have a special place. Keeping all these scenarios in mind, this research article discusses the place of ICT in education policies, the study of its resources and tools, its integration with education, problems arising in it, the positive and negative impact of ICT on higher education, etc. This is a descriptive and comparative research article presented in the special context of NEP 2020.

Index Terms - Education System, Higher Education, ICT Tools, NEP 2020, Education Policies.

I. INTRODUCTION

Achieving the goals set by education policies is possible only when efforts are made to achieve them through a specific action plan. Education policies have been presented in India in 1968, 1986 and 1992, and 2020. 1986 education policy included technology in education which NDP By coming in 2020, information and communication technology has become a place to give and receive an education. The present time is of technology and technology, exchange of knowledge, transfer of information, etc. have gone from one school or college to a worldwide method of teaching. Classroom environment administration is all influenced by ICT, "Education system has changed its nature" to become a hybrid and innovative education system to achieve goals and increase performance [1]. whether COVID-19 ICT has emerged as a powerful medium for the creation of creative learning experience, a good understanding of subject matter, integration of knowledge and information for all"[3]. Indian education system now student-centric, knowledge Transforming into a knowledge centric skill centric experiment centric milk centric framework" [4].

Information and Communication Technology (ICT) has transformed the education sector, bringing a wide range of benefits and challenges to higher education institutions. The National Education Policy (NEP) 2020 emphasizes the integration of technology in the education system, emphasizing digital literacy and innovative teaching methods. This study aims to examine the impact of ICT in higher education with a special focus on NEP 2020. The study will explore the various technologies being used in higher education, their impact on student learning, and the challenges and opportunities faced by educators in implementing ICT in the classroom. The study will use both qualitative and quantitative research methods to gather data, including surveys, interviews, and focus group discussions. The findings of this study will provide insights into the role of ICT in higher education, its impact on teaching and learning, and the challenges and opportunities associated with the integration of technology in the classroom. The results of this study will be of interest to policymakers, educators, and researchers in the field of higher education.

II. RELATED RESEARCH LITERATURE REVIEW

According to Bairwa Lal Sanyoji [2], a lot of changes are necessary for the full implementation of NDP 2020 in the education system, including online education, distance education, and availability of online content, it is necessary to focus on action planning with ICT in course curriculum, use of ICT in higher education E-learning is the prime need for all higher educational institutions to increase student performance

Babu and Srivedi 2018 [5] To integrate ICT with education, it is necessary to create teaching methods and activities keeping in mind all the teacher-student administration.

Kandu 2018[6] case study found that the two major factors affecting the adoption of digital education among Indian teachers at present are outdated conditions and teaching methods in their educational profession, problems in adapting to ICT-based teaching methods and methods, and their mindset towards ICT.

Shalini and Deepti 2022[7] ICTs are making significant changes in all fields of life, including education. ICT includes communication devices, applications, and services such as video conferencing and distance learning. They are used to improve student learning and develop learning environments. The proper unification of ICT with teaching/learning environments increases the chance of gaining education and increased productivity. In developing countries, ICTs focus on training teachers in new skills and introducing innovative pedagogies. They also invest in infrastructure for schools and creating networks among educational institutes, reducing the gap in quality of education between schools in urban and rural areas. Smart schools with objectives to foster self-paced, self-assessed, and self-directed learning are being introduced, and ICT policy for education and training is being developed.

III. PLACE OF ICT IN HIGHER EDUCATION IN THE CONTEXT OF EDUCATION POLICY

National Education Policy 1968 – Education, agriculture, industrialization, and regional language development were set for information and communication technology, media, etc. were not highlighted.

National Education Policy 1986 and 1992 – Concept of higher education and establishment of the university; Thoughts on national social technology and management, technical education and its curriculum were highlighted, attention was drawn to the inclusion of media and information technology in education, the concept of distance education was proposed and planned for the establishment of IGNOU at the national level and in the states for distance education. was encouraged to set up his Open University.

National Education Policy 2020 – Determined to enhance the quality of education through NIOS and establishment of distance education, encourage recognized higher education institutions to create quality online courses Online and online platforms by adjustment of classroom teaching i.e. hybrid teaching to higher education Preparing to move in, preparing a quality framework for ODL Achieving global standards of quality in higher education through online and in-class teaching

"Syllabus, educational direction, administrative work system, schemes for higher education, etc., operation of all, upgradation of the level of education, achievement of administrative and institutional objectives, etc., all works are done by education policy, it is an action plan by which all-round development of nation and society. It is possible " [8].

"To establish India as a world guru, effective operation of the target and action plan proposed in education policies by transformation and evaluation in the field of education is necessary at all levels" [9].
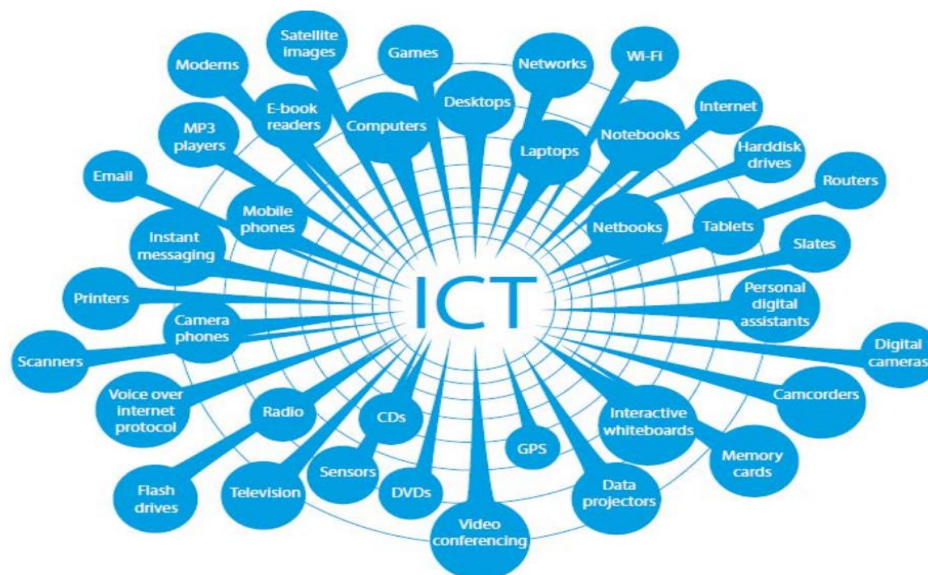

Fig1:　Tools of information and communication technology in higher education [10]
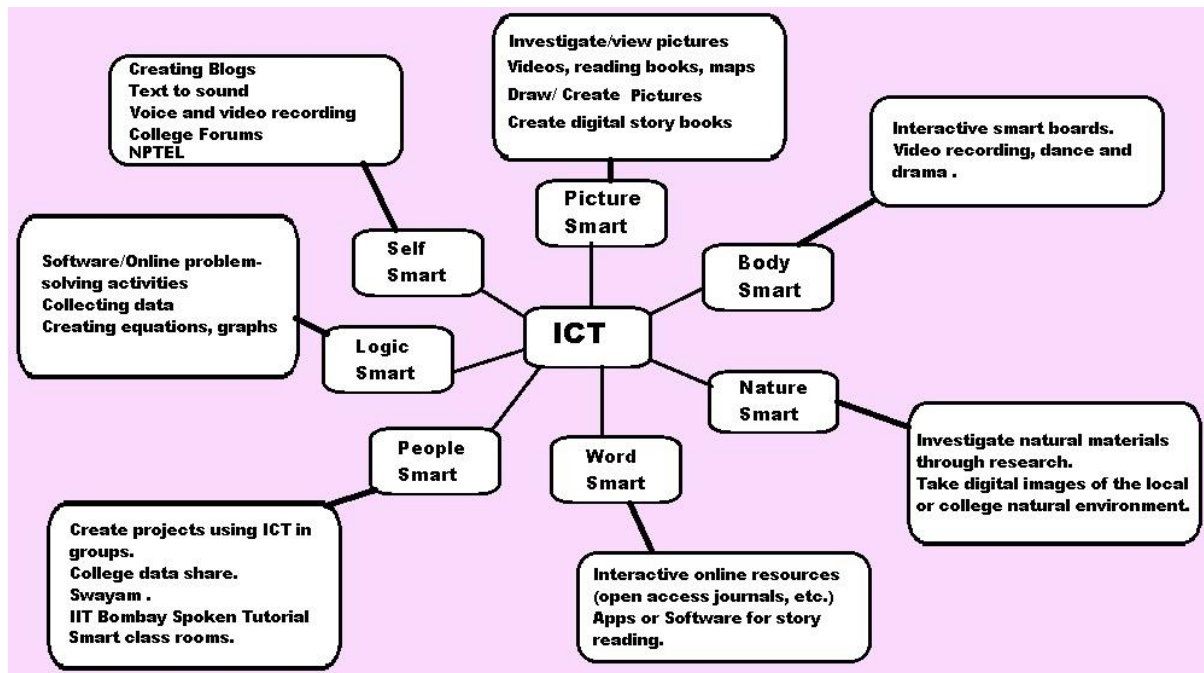
Fig 2: Information & Communications Technology Tools [11]

The Positive and Negative Impact of ICT on Higher Education

Information and Communication Technology (ICT) has had both positive and negative impacts on higher education. Here are some of the positive and negative impacts of ICT on higher education:

Positive Impacts:

1. Enhancing learning: ICT has enabled a more interactive and engaging learning experience through various technological tools such as virtual reality, gamification, and online simulations. This has made learning more interesting and improved students' retention of information.

2. Distance learning: ICT has facilitated distance learning, enabling students to access education remotely. This has increased access to education and has been particularly beneficial for individuals who cannot attend classes in person, such as those with disabilities, working professionals, or those living in remote areas.

3. Collaborative learning: ICT has enabled collaborative learning, enabling students to work together on projects and assignments remotely. This has improved teamwork and communication skills among students.

4. Access to information: ICT has made it easier to access information, making research and studying more efficient. With the availability of online libraries, databases, and search engines, students can access a vast amount of information on a variety of subjects.

Negative Impacts:

1. Dependency: Students have become too reliant on technology and may struggle to learn without it. This has made them less capable of critical thinking and problem-solving skills, which are essential in higher education.

2. Distraction: With the rise of social media and other online platforms, students can easily become distracted from their studies. This has affected their attention span and focus, making it harder for them to learn effectively.

3. Cheating: The use of ICT has also facilitated cheating, with students easily copying and pasting information from the internet or using online resources to cheat on exams.

4. Cost: The cost of implementing and maintaining ICT infrastructure can be high, which may limit access to education for some students who cannot afford it.

Overall, the positive impact of ICT on higher education outweighs the negative impact. However, it is essential to balance the use of technology with traditional teaching methods to ensure that students develop critical thinking and problem-solving skills while also benefiting from the advantages of technology [12]…

The Point of View of the Teacher

1. Ease and change possible in the creation, distribution, and evaluation of teaching resource material

2. Teachers can edit teaching work from anywhere anytime

3. Increase in confidence in conceptual analysis thereby increasing the level of business

4. Increase in the combination and operational efficiency of teaching capacity planning and practice

5. Increase in the learning and teaching capacity of the teacher

6. Availability of various means of new information and knowledge, which increases the level of teaching and knowledge of the teacher.

7. Availability of opportunities for the adjustment of multiple teaching methods

8. Use of ICT as a powerful medium for integration of knowledge among teachers through A. Conferences, Collaborative Teaching, Workshops, and Seminars

The Point of View of the Student

1. Student-cantered and self-centered education and availability of various teaching materials

2. Ample availability of study material and activities

3. Development in student behavior and learning behavior

4. Increase in analytical ability and study ability

5. Increase in the motivation level of the students for active cooperative and self-study

6. Increase in student achievement level and helpful in achieving educational objectives

7. Helpful in making students capable of higher-level learning

8. Helpful in building high-level qualities like problem-solving, analytical thinking, knowledge synthesis, etc.

9. Helpful in preparing questions related to business and workability

The Point of View of Educational Administration

1. Helpful in creating a creative and active teaching-learning environment

2. As an aid in cooperative learning in distance education teaching, building imaginative minds, cognitive development, etc.

3. Helpful in ease and sharing of educational administrative work

4. The availability of various mediums for distance education so that the distribution of education can be equalized so that the concept of accessible education can be fulfilled.

"To integrate ICT with education, collaborative learning, problem-solving teaching, creative teaching, learning achievement, etc., efforts are on at present to integrate ICT with various teaching methods and activities" [13].

"ICT provides a wide field of possibilities for easy creative acquisition of knowledge, development, implementation, and development of education system of developing countries for teachers, students".[14]

Obstacles and Their Solutions in the Integration of ICT in Education

The integration of information and communication technology (ICT) in education has become increasingly important in recent years. However, there are several obstacles that can hinder the effective implementation of ICT in education. Here are some common obstacles and their possible solutions:

1. Limited access to technology: Many schools and students do not have access to the necessary technology, such as computers, the internet, and software. This can limit the potential of ICT in education.

Solution: Schools and governments can work to increase access to technology, such as providing computers and internet access to schools and students, and establishing public computer labs in communities. Additionally, schools can consider using low-cost or open-source software to reduce costs.

2. Lack of teacher training: Teachers may not be familiar with using technology in the classroom or lack the necessary skills to integrate ICT effectively into their lessons.

Solution: Professional development and training programs can be developed to provide teachers with the necessary skills to use technology in the classroom. Additionally, schools can hire technology specialists to provide ongoing support and training for teachers.

3. Resistance to change: Some teachers, students, and parents may resist the use of technology in education, viewing it as a distraction or unnecessary.

Solution: Communication and awareness campaigns can be developed to educate stakeholders about the benefits of using technology in education, and to dispel myths and misunderstandings. Additionally, involving students in the decision-making process and providing opportunities for them to provide feedback and suggestions can help to increase buy-in and support.

4. Lack of relevant digital content: The availability of digital content that is relevant to the curriculum can be limited, which can make it difficult for teachers to incorporate technology effectively into their lessons.

Solution: Schools can work to develop or curate digital content that is relevant to the curriculum, and to make it accessible to teachers and students. Additionally, partnerships can be established with other schools or organizations to share resources and expertise.

5. Inadequate infrastructure: In some areas, the ICT infrastructure may not be sufficient to support the use of technology in education, such as slow internet speeds or unreliable power supply.

Solution: Governments and schools can invest in improving ICT infrastructure, such as upgrading internet connections or installing backup power sources. Additionally, cloud-based solutions can be used to reduce the dependence on local infrastructure [15].

Others Obstacles

1. Lack of security of personal information of students and teachers

2. Due to the lack of technical efficiency, the problems faced by the teachers in the preparation of teaching material and the students for their use

3. Disinterested behavior of the heads of the institutions towards the increased responsibilities due to new administrative upgradation

4. All related to the availability of digital equipment, internet facility, electricity facility, etc. for students of low economic status.

5. Lack of infrastructure related to full availability of classroom network equipped with ICT equipment, electrical equipment, projector, tablet, etc.

6. Problems related to the availability and maintenance of high-cost ICT equipment

7. Lack of collection of appropriate educational software and supporting activities Lack of online teaching study material

8. Complete attitude of teacher students and educational administration towards ACP

9. Lack of financial support, positive motivation, and disinterested behavior of teachers, students, and administration

10. Problems related to the adjustment of pedagogy, educational guidance, classroom management, learning activities, and ICT tools with student learning ability.

Solution

1. Complete training activities related to technology should be edited with professional skill and necessary assistance should be provided in the selection of teaching resources and teaching methods related to ICT.

2. Teachers should share technology-related experience efforts and motivate each other now

3. Workshops and training should be organized from time to time effectively and continuously on how to adjust educational instruction, teaching methods, teaching materials, etc. with technology.

4. Teachers should have the freedom to choose ICT-related teaching resources and teaching methods adapted to the curriculum

5. Collaborative behavior by the college administration and positive and yet inspirational teaching by the teacher should be tried for the students with ICT

6. The curriculum of ICT education given to the students at the primary, secondary, and higher secondary levels should be structured keeping in mind its use at the college level.

7. ICT training programs including the subject matter of a prescribed time duration should be mandatory for teachers with certificate

8. Administrators should have positive thinking and appropriate management attitude on grants and government projects received by NGOs and the private sector

9. Efforts should be made by the administration and administrators to provide classrooms and resources equipped with ICP so that students can get a suitable study environment and teachers can get a teaching environment.

10. Shifting from traditional teaching methods activity curriculum towards appropriate Anvay Shiva technology-based teaching learning both students and teachers should try to adapt themselves based on this.

Overall, integrating ICT into education requires a comprehensive approach addressing the implementation process's technical, human, and organizational aspects. By overcoming these obstacles and leveraging the benefits of ICT, education can be transformed to better meet the needs of students and prepare them for the digital age. "Our world is rapidly entering into ICT based environment due to which proficiency in ICT based environment is essential to survive in the 21st century. It reduces the time it saves time as well as gives economic and social benefits to the organization" [16]."ICT provides better ways of learning in higher education and improves the quality of education by transforming the education system through better teaching methods and learning outcomes" [17].

National Education Policy 2020 and The Place and Impact of ICT in Higher Education

1. Use of online platforms like Swayam Prabha Deeksha for teacher training

2. Important platform for the exchange of ICT-adjusted teaching-learning evaluation and administrative work by the National Education Technology Forum proposed for higher education and school education

3. Provision has been made to encourage and grant grants to national and state-level colleges for making study material for distance education and handicapped students.

4. Scheme to strengthen digital literacy by teaching ICT from the primary level to equip students for ICT enabled learning environment till higher education

5. Continuous efforts for ICT-connected infrastructure and classroom management, researchers should be encouraged to create ideas and action plans to transfer the teaching system to the online platform.

"The National Education Policy 2020 has been carefully designed to understand the benefits of digital education, to understand the benefits of digital education and prepare for the future by influencing teaching-learning through this education policy" [18]. "The National Education Policy 2020 has made significant changes in the system of higher education, has brought about a complete transformation with schemes like Digital India and Skill India, has shifted education to a new level with an action plan from agriculture to artificial intelligence"

The National Education Policy (NEP) 2020 is a comprehensive policy document released by the Indian government that aims to revamp the entire education system in the country. The policy has a strong focus on the use of Information and Communication Technologies (ICT) in education, particularly in higher education. The NEP 2020 recognizes the transformative potential of ICT and emphasizes the need to leverage technology to improve the quality and accessibility of education. The policy recommends the integration of ICT in all aspects of higher education, including teaching, learning, research, and administration [19].

Some of the key recommendations of the NEP 2020 related to the use of ICT in higher education are as follows:

1. Online and Blended Learning: The policy encourages the development of online and blended learning models that combine the best aspects of online and face-to-face learning. It recommends the creation of a National Educational Technology Forum (NETF) to facilitate the development and use of online and digital education resources.

2. Virtual Labs and Learning Spaces: The NEP 2020 recommends the development of virtual labs and learning spaces that can be accessed remotely by students and teachers. This can help in overcoming the limitations of physical labs and classrooms and enable students to learn and experiment in a virtual environment.

3. Technology-enabled Assessment: The policy recommends the use of technology-enabled assessment tools such as computer-based tests, online quizzes, and automated grading systems. This can help in improving the efficiency and accuracy of assessments and reduce the workload of teachers.

4. Teacher Professional Development: The NEP 2020 emphasizes the need for teacher professional development in ICT and recommends the creation of a dedicated ICT training program for teachers.

Discussion on Indian Higher Education and National Education Policy 2020

Overall, the NEP 2020 recognizes the crucial role of ICT in higher education and emphasizes the need to leverage technology to improve the quality and accessibility of education. The policy provides a roadmap for the development and implementation of technology-enabled education models that can help in transforming the higher education landscape in India. India's higher education system has undergone significant reforms in recent years, including the introduction of the National Education Policy (NEP) 2020. The NEP 2020 is a comprehensive policy that aims to transform India's education system and make it more inclusive, innovative, and globally competitive. One of the key features of the NEP 2020 is the emphasis on multidisciplinary education, which encourages students to pursue courses from different disciplines and integrate knowledge from various fields. The policy also proposes the establishment of a National Research Foundation (NRF) to fund and support research across disciplines and institutions [20].

Another significant aspect of the NEP 2020 is the focus on technology and digital learning. The policy advocates the use of technology to enhance teaching and learning, and proposes the development of a National Educational Technology Forum (NETF) to facilitate the use of technology in education. The NEP 2020 also aims to improve access to higher education for underprivileged and marginalized sections of society. The policy proposes the establishment of a Gender Inclusion Fund and a Socially and Economically Disadvantaged Groups (SEDGs) fund to provide financial assistance to students from disadvantaged backgrounds.

Despite these positive developments, the Indian higher education system still faces several challenges, including inadequate funding, low research output, and a lack of quality faculty. The NEP 2020 addresses some of these issues, but its implementation will require significant investment and sustained efforts from the government, academia, and other stakeholders. Overall, the NEP 2020 is a significant step towards transforming India's education system and making it more relevant and responsive to the changing needs of society. Its success will depend on effective implementation and sustained efforts to address the challenges facing the higher education system [21].

Discussion on Indian Higher Education and ICT

Indian Higher Education has undergone a significant transformation over the past few years. Information and Communication Technology (ICT) has played a crucial role in this transformation. The Government of India has recognized the potential of ICT in education and has taken several initiatives to promote its use in Higher Education. One of the most significant initiatives is the National Mission on Education through ICT (NMEICT), launched by the Government of India in 2009. The mission aimed to leverage ICT to provide quality education to students, especially those in remote areas [22]. Under this mission, several projects were launched, such as the SWAYAM platform, which provides online courses to students and teachers, and the National Knowledge Network (NKN), which connects educational institutions across the country.

Another significant initiative is the Digital India campaign, launched in 2015, which aims to transform India into a digitally empowered society and knowledge economy. The campaign has a particular focus on promoting the use of ICT in education, healthcare, and governance. The use of ICT has brought several benefits to Higher Education in India. It has made education more accessible, especially for students in remote areas who would otherwise have limited access to quality education. It has also made education more affordable, as online courses and digital resources are often cheaper than traditional classroom-based education. Additionally, ICT has made education more flexible, allowing students to learn at their own pace and convenience [23].

However, there are also some challenges that need to be addressed. One of the significant challenges is the digital divide. While ICT has made education more accessible, there are still many students who do not have access to digital devices or a stable internet connection. Additionally, there is a need for faculty training and support to effectively use ICT in teaching and learning. ICT has played a significant role in the transformation of Higher Education in India. The government's initiatives, such as NMEICT and Digital India, have been instrumental in promoting the use of ICT in education [24]. However, there are still challenges that need to be addressed to ensure that all students have access to quality education through ICT.

Fig 3: Benefits of ICT in Education [25]

Conclusion

Classroom teaching, educational administration, coordination in various higher educational institutions, teaching materials, study materials, etc. are all discussed in an education policy, which will currently determine for the future through MEP 2020, how much the level and quality of education will change due to changes in the education system. In this age of digital education, the environment of imparting education through integrated education with ICT, place, the administration has changed rapidly, and many benefits have also been received, keeping this in mind, NDP 2020 Many schemes have been proposed for change in the education system with special attention to ICT, but there are some obstacles in the implementation of ICT in higher education, which need to be resolved. To provide education in a digital environment, basic skills, technical knowledge, and subject knowledge are necessary. Because education is the basis of the all-around development of a person and nation, education policies are a changing structure over time, on this, the world of education is based and connected with ICT. To provide education, teachers should be competent in the technical skills of the students, it is necessary to be aware of the educational administration and appropriate assistance of the government, ICT-based teaching methods, educational instruction, and curriculum structure are burning topics for research so that the field of educational technology in the office of MEP 2020 We can move forward in this and we can get qualified, skilled and thoughtful people and society in the future.

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