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3. National Education Policy (2020) And Impact of ICT

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Abstract:

Every field under the sun is being greatly impacted by information and communication technology (ICT), and education is no exception. Every facet of education is being impacted, including assessment and evaluation as well as teaching and learning. Education becomes more effective as a result. It supports initiatives for literacy. By enabling inclusive education and mobile learning, it broadens the scope of education. It makes scholarly communication and research easier. ICT has several effects and has a lot of potential for the subject of education. It benefits every party involved in the education industry. In accordance with the policy, funds must be allocated to the development of digital infrastructure, online learning platforms and tools, virtual labs and digital repositories, training teachers to produce outstanding online content, designing and executing online assessments, and setting standards for pedagogy, content, and technology for online learning. The New Education Policy (NEP), which was written (updated) in 2019 and approved by the Union Cabinet of India on July 29, 2020, is one of the most significant policies of the 21st century. The policy, which focuses on many aspects of education, including the integration of ICT, is revolutionary and comprehensive in every way. The need for ICT uses in the sphere of education in the twenty-first century was rapidly expanding. The policy recognizes the importance of information and communications technology in helping teachers overcome language barriers, particularly in a multilingual nation like India, as well as in enabling the creation of digital libraries and a technology-based platform for teacher preparation. The aforementioned policy acknowledges the importance of technology in fostering multidisciplinary research and innovation, as well as in enhancing teaching, learning, assessment, planning, and administration of education. We'll talk about in this paper. 2020 National Education Policy and the effects of ICT.

Keywords:

National Education Policy, Information and Communication Technologies, Teaching-Learning, Mobile Learning, Schools, Students, Educational Resources, Higher Education, Digital Education

3.1 Introduction:

Realizing one's full potential, creating a just and equitable society, and advancing national progress all depend on education. The secret to India's continuous rise and leadership in the world in the areas of economic expansion, social justice and equality, science, national

integration, and cultural preservation is to ensure that everyone has access to high-quality education. The best path forward for utilizing and developing our nation's many skills and resources for the benefit of each and every person, society, the nation, and the planet is universal access to high-quality education. Over the next ten years, India will have the largest youth population in the world; the future of our nation will depend on our capacity to offer them opportunities for a top-notch education.

Any civilization needs education as an essential element since it shapes the future of its people and provides a solid foundation for both individual and societal growth. Education has always been very important in India, and several policies and reforms have shaped its development. The implementation of the New Education Policy (NEP) in 2020 is among the most important and recent changes to the Indian educational system. A comprehensive and revolutionary plan that outlines the direction of education in India is the New Education Policy 2020. It signifies a profound change in the way the country views, plans for, and provides education. This strategy is a reaction to the dynamic demands of a world that is changing quickly and where knowledge, skills, and adaptability are essential for both personal and societal advancement. [1]

3.2 National Education Policy 2020:

A new chapter in Indian education A historic policy that will transform India's venerable educational system is the National Education Policy - 2020, put forth by the Ministry of Human Resource Development (MHRD). The Indian Education Policy has undergone three revisions. Multiple educational improvements are suggested for our nation by NEP 2020. Its emphasis has been on using information and communication technologies to integrate teaching and learning in a variety of contexts. The importance of advancing digital and online learning nationally is emphasized by the policy. The new education policy has made many commitments and promises to facilitate online learning and to make teaching and learning more comfortable. The education sector will undergo significant modifications as a result. The Government of India has meticulously created criteria to guarantee high-quality education. They understand that investing in cutting edge disruptive tools for education, such e-learning, choice-based education systems, and online assessments, would definitely change the game for universities, HEIs, and schools.

3.2.1 Information and Communication Technology:

The word ICT represents information and communication technology. It is described as the application of technological tools, such computers and software, to the transmission and processing of information, allowing it to be processed, converted, and stored. Under the national policy on ICT (NCF 2005), ICT refers to all digital tools, content, resources, forums, and services as well as those that can be converted into or delivered through digital forms and used to realize teaching-learning objectives, improve access to and reach of resources, the development of capacities, as well as management of the educational system. Information and communication technology (ICT) encompasses a wide range of technological approaches for finding, obtaining, compiling, creating, and disseminating data and information. ICT encompasses a broad spectrum of technologies, including digital technologies like computers, software, and information networks (internet, intranet, and

global web) as well as telecommunications systems like computers, cable, satellite, TV, radio, and computer-mediated conferencing and videoconferencing. Stated differently, the digital convergence of computers, telephony, and other media communication technologies gave rise to ICT.

In order to supplement current teaching practices and knowledge, the Indian education sector has been adjusting to the newest ICT tools. The instructors' adoption of new roles , pedagogies and methods has been facilitated by the new technologies. The development of ICT has made it easier for teachers to engage with students, enhance their instruction, give feedback, and increase the classroom's overall efficacy. The relationship between technology and education is highly valued in the NEP, 2020. “Extensive use of technology in teaching and learning, removing language barriers, increasing access as well as education planning and management” is listed as one of the guiding principles of the education system, according to the policy. It promotes the use of technology platforms for online teaching and training programs and highlights the function of ICT as a useful instrument for facilitating teacher education. The policy asks for funding for digital infrastructure, the creation of digital repositories and virtual labs, the development of online teaching platforms and tools, the training of teachers to become proficient online content creators, the design and implementation of online assessments, and the establishment of standards for pedagogy, content, and technology for online teaching and learning.

The policy also acknowledges the following four crucial elements of ICT integration in the education:

- The installation of ICT infrastructure in educational institutions and programs for teacher preparation
- Establishing professional learning communities and improving teacher preparation and professional growth,
- Creation of Open Educational Resources (OER) curriculum materials for instructors and students, and
- Constructing state-level ICT integration infrastructure, such as portals for e-learning courses and OER repositories. [2]

3.2.2 Various provisions of NEP 2020 for ICT:

With the recent surge of pandemics, digital platforms are essential for ICT-based teaching initiatives. While recognizing the value of harnessing technology's advantages, NEP 2020 also recognizes some of the risks and dangers associated with it. Pilot studies that are well-designed and adequately scaled are necessary to determine how the benefits of digital education may be realized while addressing its disadvantages. It is essential to maximize and expand the current digital platforms and ongoing ICT-based educational efforts in order to solve the present and future barriers to providing all students with a high-quality education.

- Online teacher training via digital platforms like SWAYAM/DIKSHA is encouraged by NEP 2020 in order to standardize training programs that may be given to many instructors in a short period of time.

- Innovations in technology that support professional development and teacher training, broaden access to education, and enhance administrative processes in the field of education such as admissions, attendance, and assessments.
- NEP 2020 specifies that educational software would be available to teachers and students at all levels, including Divyang students and those in rural areas. The e-content for teaching and learning produced by NCERT, CIET, CBSE, NIOS, and all states in their regional languages would be hosted on the DIKSHA platform.
- To provide an open platform for the exchange of ideas regarding the use of technology to enhance teaching, learning, assessment, planning, administration, and other facets of secondary and higher education, the National Educational Technology platform (NETF) shall be founded.
- According to NEP 2020, schools must give teachers the right ICT tools, so they are able to effectively incorporate e-content into teaching and learning activities.
- In order to be successful online educators, teachers must obtain the right training and growth, according to NPE 2020. An educator who excels in a traditional classroom might not translate to an online setting. In order to address the e-education demands of both school and higher education, NEP 2020 specifies that the Ministry would concentrate on developing digital infrastructure, digital content, and capacity building. With technology developing at a rapid pace, we need expertise to deliver high-quality e-learning. [3]

3.3 Review of Literature:

Information and Communication Technology (ICT) is a scientific, technological, engineering, and management approach that is applied to the processing of information and its relationship to social, economic, and cultural issues (UNESCO, 2002).

The use of information and communication technology (ICT) in the classroom is becoming more and more necessary. The way the educational system operates has been radically transformed by ICT. [4]

ICT applications' quick proliferation, which has resulted in significant changes in technology, society, and economics. Teachers, administrators, and educational institutions have all had to reconsider their responsibilities in the classroom and their future goals as a result of these developments. An efficient educational system is essential to a country's economic viability in the age of information. It is regarded as an investigation of inputs and outputs in comparison. ICTs have changed how people operate today and are also changing educational systems, according to Watson (2001).

In an educational system, the quantity and quality of student learning are the outputs, and the inputs include teachers, students, classroom supplies, teaching tools, and teaching methods. An increased possibility of education and productivity are achieved when ICT is properly integrated into the teaching and learning environment. ICT, according to NEP 2020, gives students a variety of opportunities and informs instructors of their new duties and responsibilities in the classroom. Many of the learning tactics used by instructors and students will alter as a result of the increasing use of ICT. ICT plays a recurring and inevitable role in the administration of education. [5]

Manish T I (2023) This paper investigates four case studies from medical schools in Singapore, Pakistan, the United States, and Scotland that use outcome-based instruction. The medical programs covered in these case studies have either already adopted outcome-based curricula, are in the process of doing so, or are considering recommendations for them. The guide provides details on the established educational outcomes, the methods used to implement the outcome-based strategy, and the developments at each institution. It also examines the implementation of outcome-based learning in each medical school, emphasizing critical components for successful execution. [6]

Ramanand Nand (2020) One of the most inventive and well-known literary masterpieces of our time is The National Educational Policy. The manifesto encourages the creation of a "New India" and gives hope for the resuscitation of our educational system. The NEP-2020 has done a good job of striking a balance between the responsibilities of the present and the difficulties of the future. NEP understands how critical it is that we pursue further education.

However, there are still many problems with our educational system that need to be addressed. These problems include out-of-date curricula, inadequate facilities, pedagogical problems, a culture that discourages creative research, etc. NEP-2020 addresses every issue that has been brought up in this policy statement. [7]

3.4 Objectives:

- To critically analyses the infrastructural requirements of ICT.
- To study the NEP 2020's diverse ICT-related aspects for teaching and learning.
- To understand the major recommendations of NEP 2020 regarding ICT integration in education.
- To study role of Information Communication Technology and Digital Information Technology for developing Education in New Education Policy.
- To examine ways that technology improves the educational techniques.

3.5 Research Methodology:

This exploration is a descriptive study. The required secondary data was gathered from a variety of websites, such as the Indian government's periodicals, magazines, and other publications. A large number of academic articles on the subject of NEP-2020 and ICT were reviewed using a variety of databases. The implications and findings were reached after this data was examined and assessed.

3.6 Result and Discussion:

On July 30, 2020, the National Education Policy (NEP) 2020 was made public. The National Policy on Education, 1986 will be replaced by it. The NEP's main recommendations are as follows: (i) revamping the curriculum to include early childhood care and education; (ii) reducing dropout rates to ensure that everyone has access to education; (iii) raising gross enrolment to 50% by 2035 in higher education; and (iv) enhancing research in higher education institutions by establishing a Research Foundation.

3.6.1 Universal Access to Education:

According to the NEP, the Right to Education Act of 2009 has been successful in almost reaching universal enrollment in primary school; yet the school system still faces difficulties in keeping students in school. Gross Enrollment Ratio at the senior secondary level was 56.2% in 2015–16, while it was 99.2% at the elementary level. Enrollment as a percentage of the population in the respective age group is shown by GER. Additionally, it mentioned that some socioeconomically deprived groups have a larger fall in GER due to: (i) Gender identities (female and transgender individuals), (ii) socio-cultural identities (scheduled castes, scheduled tribes), (iii) geographical identities (students from small towns and villages), (iv) socio-economic identities (low-income households and migrant communities), and (v) disabilities are the first five categories. We describe the GER in school education across (i) gender and (ii) socio-cultural identities in the table below. [8]

Table 3.1: GER In School Education for Different Gender and Social Groups (2015-16)

Level	Male	Female	SC	ST	All
Primary (I-V)	97.9%	100.7%	110.9%	106.7%	99.2%
Upper Primary (VI-VIII)	88.7%	97.6%	102.4%	96.7%	92.8%
Secondary (IX-X)	79.2%	81%	85.3%	74.5%	80%
Senior Secondary (XI-XII)	56%	56.4%	56.8%	43.1%	56.2%

Sources: Educational Statistics at Glance 2018, MHRD; PRS.

Data for every group shows a decrease in GER for every group as they go from primary to senior secondary. For Scheduled Tribes, this reduction is very severe. Additionally, we examine the cause of school dropouts. According to the data, participation in home activities for girls and economic activities for boys was the main cause of dropout.

3.6.2 Increasing GER in Higher Education to 50% by 2035:

By 2035, the NEP wants to see a 50% rise in GER in higher education. The nation's GER for higher education was 26.3% as of 2018–19. The trend of GER in higher education over the past few years is depicted in Figure 3.1. It should be noted that for the past few years, GER in higher education has grown at an annual pace of about 2%. [9]

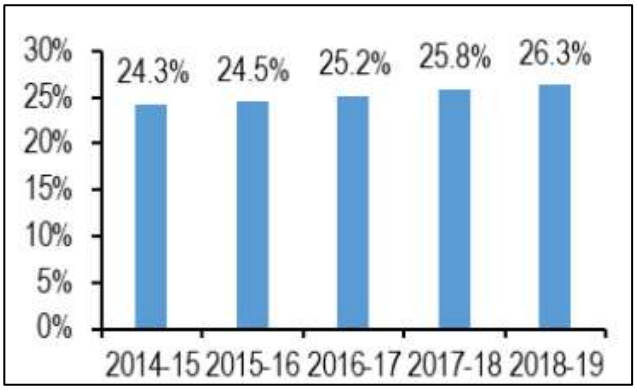

Figure 3.1: GER in Higher Education (2014-15 to 2018-19)

(Sources: All India Survey on Higher Education, MHRD; PRS.)

3.6.3 Digital Education:

When in-person instruction is not feasible, as was the case during the most recent epidemic, the NEP mandates that substitute forms of high-quality education should be created. To guarantee inclusive digital education, a number of interventions are needed, including: (i) creating two-way audio and video interfaces for online learning; and (ii) using mass media, radio, and television in multiple languages to ensure that digital content is accessible in areas without digital infrastructure. Within this framework, we examine: (i) the accessibility of computers and the internet in Indian homes; and (ii) the proficiency of individuals aged 5-14 in using computers and the internet. In rural areas as of 2017–18, access to computers and the internet was comparatively limited. With the exception of cellphones, just 4.4% of rural homes have access to a computer, and only 15% have internet connectivity. Of urban households, 42% have internet access.

Table 3.2: Access to Computer and Internet across households (2017-18). [Sources: Household Social Consumption on Education (2017-18), Ministry of Statistics and Program Implementation, July 2020; PRS.]

Access to ICT	Rural	Urban	Overall
Households having computer	4.4%	23.4%	10.7%
Households having internet facility	14.9%	42.0%	23.8%

Note: Computers come in tablet, notebook, laptop, and desktop varieties. Smartphones are not included.

Table 3.3: Ability To Use Computer and Internet Across Persons in The Age Group 5-14 (2017-18)

Ability to use ICT	Rural	Urban	Overall
Ability to use computer	5.1%	21.3%	9.1%
Ability to use internet	5.1%	19.7%	8.8%

Note: The ability to use a computer refers to the capacity to perform any of the following operations, among others: (i) copying or moving a file or folder; (ii) sending emails; and (iii) transferring files between a computer and other devices. The ability to utilize the internet entails being able to browse websites, send emails, and use social networking apps.

We can see the differences in state-level spending on education in the following figure. The budgeted expenditure for education in the states of India for the year 2020–21 was 15.7%. More than 18% of state budgets for 2020–21 will go toward education in states like Delhi, Rajasthan, and Maharashtra. In comparison to the average state spending on education, Telangana (7.4%), Andhra Pradesh (12.1%), and Punjab (12.3%) have lower levels of spending. [10]

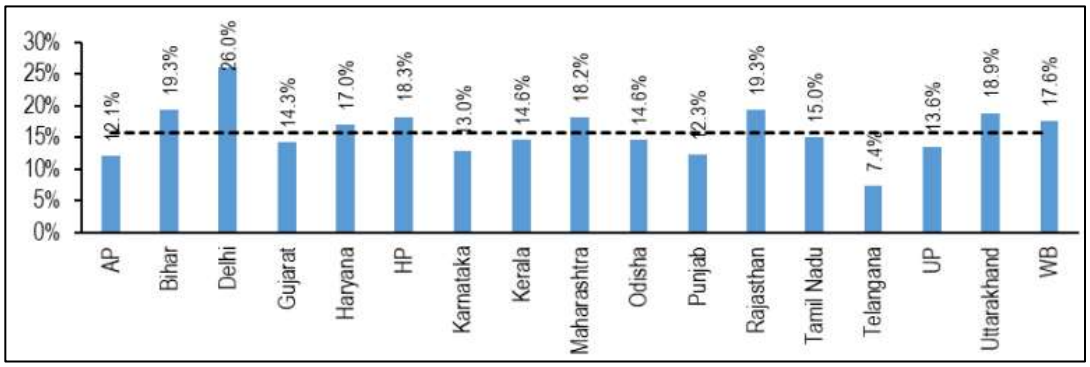

Figure 3.2: Budgeted Allocation on Education (2020-21) By States in India

(Sources: Analysis of various state budget documents; PRS.)

Note: Andhra Pradesh is known as AP, Uttar Pradesh as UP, Himachal Pradesh as HP, and West Bengal as WB.

Adapting to digital modes of education is a massive endeavor full of hurdles, especially in India, a country known for its diverse population and limited resources (ICT infrastructure, electricity, money, skilled human resource). Various State/UT level organizations like SCERTs, School Boards, DIETs, BIETs, CTEs, and IASEs, as well as National level organizations like NCERT, CBSE, NIOS, KVS, and NVS, must collaborate to bring about a change that will last beyond COVID-19. Decentralized planning and implementation with a hands-on approach is urgently needed. In the upcoming years, we can take advantage of the demographic dividend and work together to consistently improve the standard of education and skill development for the sizable student body. Integration and convergence of policies, schemes, programs, and services are required, along with the merger of parallel structures using a multimodal approach and creative tactics, in order to realize the content-ICT-pedagogy integration and usage of disruptive technology in the real sense. With the goal of building a "unified national digital infrastructure to energize and catalyze the education ecosystem," NDEAR, or National Digital Education Architecture, was established. This is essentially a technology framework that seeks to provide common building blocks and services for the development of new tools and solutions, while also enabling the modernization and interoperability of existing systems. The goal of NDEAR is to encourage and stimulate the ecosystem of digital education through these shared resources and facilities. It is described as a "distributed, adaptive, and open socio-technical system with sustainability, scalability, and self-organization" features. [11]

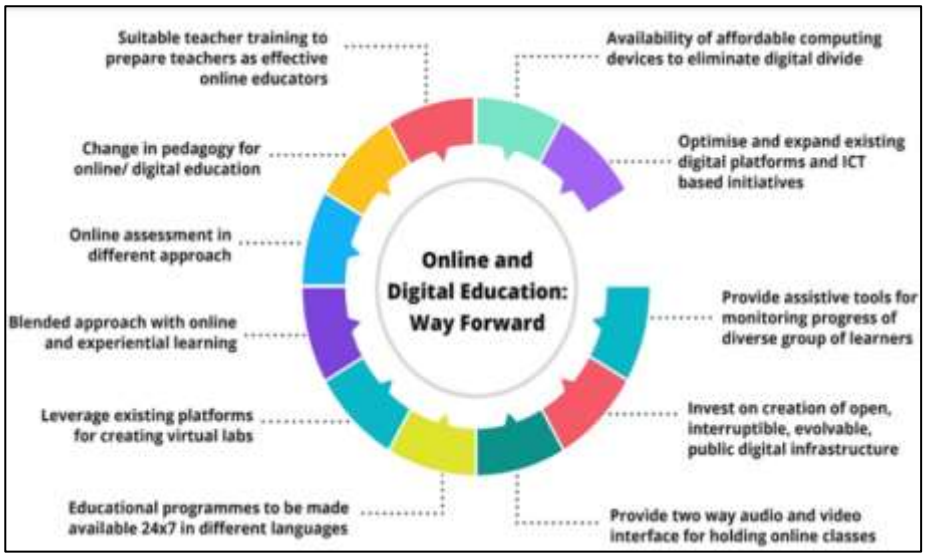

Figure 3.3: Online and Digital Education

3.6.4 National policy on ICT in school education:

The strategy suggested a national model curriculum for ICT in education, and states will be urged to implement or modify it in all of their secondary public and private schools (MHRD, 2012). It established three levels of ICT competency: basic, intermediate, and advanced. These levels need to be updated on a regular basis to reflect advancements in technology (see to Figure 3.4).

Basic: Using a computer to perform basic word processing and data processing tasks; connecting, disconnecting, and troubleshooting basic input, output, and storage devices; operating a computer; conserving, accessing, and managing data; connect to the internet, utilize search engines, e-mail, and web browsing; maintain computer security and updates; operate and manage content from external devices (scanners, sound recorders, digital cameras, etc.); connect, disconnect, operate, and troubleshoot digital devices.

Intermediate. Utilizing a range of software programs and digital tools, create and manage material; find, obtain, and manage content, tools, and resources via websites and search engines; install, uninstall, and troubleshoot basic software programs, etc.

Advanced. Use a variety of software tools to improve your learning, such as database applications, data analysis and problem-solving software, computing, design, graphical and audio-visual communication, research, and projects that involve the use of online resources; utilize ICT for documentation and presentation; create and participate in web-based networks for cooperative and collaborative learning; and learn about cybersecurity, copyright, and safe ICT use, taking the necessary precautions to protect yourself and use resources. [12]

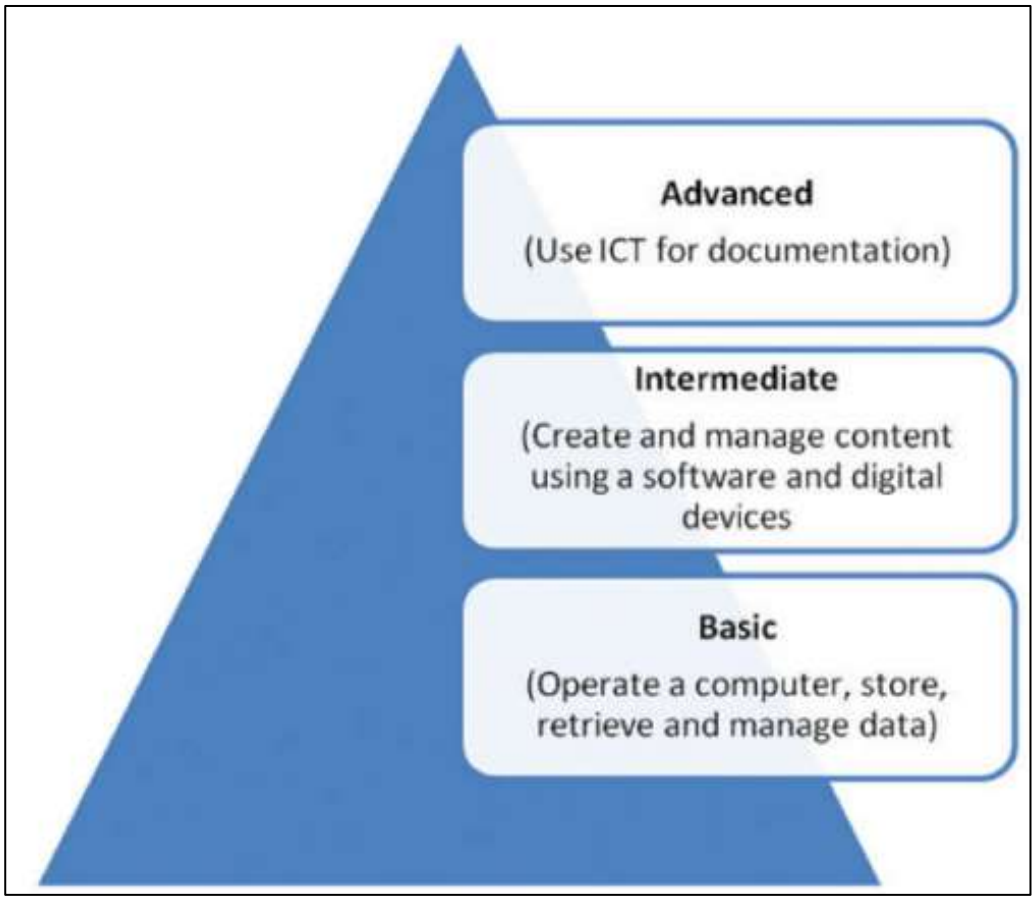

Figure 3.4: Model Curriculum for ICT in Education (MHRD, 2012).

3.6.5 Dimensions of ICT in Education:

By determining the essential elements of the environment, a pragmatic model that meets the best needs for productive outcomes in an online learning management system (LMS) may be understood.

In order to achieve academic goals without sacrificing the standard, ethics, or morality of education, these essential elements are also referred to as ICT components. Making better decisions on the core components that are essential to building better teaching-learning interactions is made easier by recognizing and evaluating the aspects. These aspects and their use in ICT-enabled education are discussed in Figure 5 below.

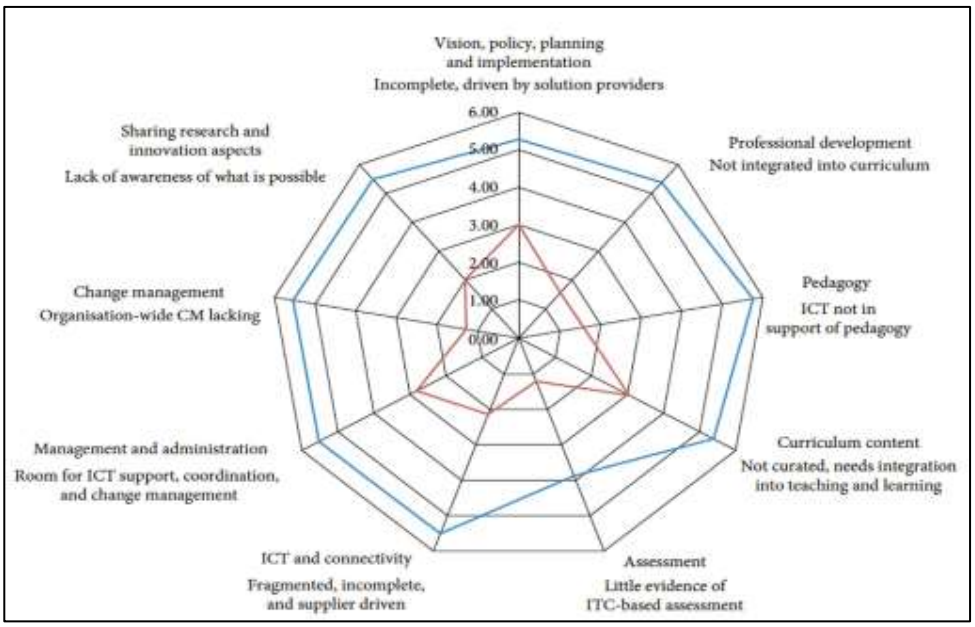

Figure 3.5: Dimensions of ICT In Education [13]

3.7 Conclusion:

Every aspect of life, including education, is being impacted by ICT. They advocate for significant reforms in teaching-learning techniques, information handling and exchange, workplace conditions, and other areas. The field of education is one where ICT's effects are pertinent and significant. The method that teaching is done and how students learn is changing significantly thanks to ICTs. An ICT-enabled learning environment is a great improvement over a traditional one in that it promotes active, collaborative, creative, integrative, and evaluative learning. Teachers and education have held honorary positions in society since ancient times. Teachers are becoming more productive by embracing ICT as a tool, as it allows both students and teachers to stay up to date on the newest technological developments through the use of digital tools and resources. ICT has been crucial to the revolution that we are witnessing in this day and age. Teachers' and students' roles will shift as a result of the implementation of the New Education Policy.

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