Infrastructure for ICT-Based Teaching Learning

Swati Kumari

Research Scholar, Department of Education
Dayal Bagh Educational Institute, Agra,
U.P.Email: swatieducation2019@gmail.com

Abstract:

Education is a strong pillar that supports the whole nation to become digitally empowered. Tech-savvy teachers' role is precious and important in properly implementing ICT – Based teaching-learning infrastructure. Integration of technology is one of the crucial steps which is responsible for better transformation and improvement of educational processes. As per NEP 2020, an autonomous body, theNational Educational Technology Forum (NETF) will be set up to develop a platform for the free exchange of ideas and thoughts related to the utilization of technology for the enhancement in the areas such as teaching-learning process, assessment, administration, and many more other areas at both schooland higher education level. Integrating ICT in the educational setup is very valuable but is a very difficulttask to do it correctly and systematically. It requires lots of planning, effort, and financially strong support. ICT-oriented teaching learning boosts up and provides a very bright future for upcoming new generations of a nation. This paper presents the highlights of NEP 2020 and discusses the importance ofusing various technologies to smoothly integrate ICT in teaching-learning. The challenges which come across while implementing ICT in teaching-learning to strive for excellent learning outcomes are also part of this paper. Lastly, some suggestions are very well provided to discuss the infrastructure requirements for promoting ICT – Based teaching-learning.

Keywords: ICT, Infrastructure for teaching learning, NEP 2020 highlights, Uses of technology, Challenges andsuggestions related to Infrastructure for ICT – Based teaching-learning.

INTRODUCTION

ICTs are essential facts managing tools –numerous sets of goods, programs, and offerings that are usedto produce, store, process, distribute and trade facts. They include „old" ICTs of radio, tv, and telephone,and the „new" ICT of computers, satellite tv for pc and wi-fi generation, and the Internet with their attendant tools. ICT consists of hardware, techniques, and structures which might be used for storing, managing, and sharing information. ICT withinside the context of the paper refers to using Informationand Communication Technology equipment used withinside the teaching-gaining knowledge of procedures including LCD projectors, Smart classes, etc. Information and communication technology integration in teaching and learning empowers teachers and students to work more effectively with the current scenario of education.

The latest developments in the era must be pondered in an up-to-date ICT policy. Moreover, virtual gaining knowledge of structures or answers should replicate the concepts of the NCF in phrases of assisting freshmen to join expertise with the outdoor world, discourage gaining knowledge via way of means of rote and sell creativity in children. In line with the concepts of the NCF 2005, virtual content

material ought to be dealt with withinside the equal manner as different curriculum content material, with strong and described strategies for content material development.

ICT has additionally ended up imperative to the teaching-learning interaction, via such tactics as changing chalkboards with interactive virtual whiteboards. College students use their smartphones or different gadgets for learning during class time and the "flipped study room" version wherein college students watch lectures at home on their pc and use their classroom hours for extra interactive exercises.

Highlights of Nep 2020

The New Education Policy (NEP) 2020 has been launched via way of means of the newly renamed Ministry of Education (previously Ministry of Human Resource Development) and authorized via way of means of the Union Cabinet of India in July 2020. The imaginative and prescient of NEP 2020 is to reshape and rework the schooling device and shape it withinside the country. It targets at universalizationof schooling from pre-faculty to the secondary level.

NEP 2020 emphasizes the introduction of digital labs in which college students can exercise their theoretical know-how and make direct content material to be had in unique languages. The newly

renamed Ministry of Education proposes to install a committed unit for merchandising virtual studying. The committed unit will incorporate specialists from the sphere of education, instructional technology, administration, and e-governance who will consciousness of the online studying wishes of each faculty and better education. More emphasis can be given to online evaluations and examinations.

NEP 2020 has a unique consciousness of online education. Universities and establishments like NITs and IGNOU might be engaging in pilot studies research for maximizing the advantages of virtual gaining knowledge in India.

Keeping tempo with the keenness for technology-enabled learning, the Ministry of Human Resources and Development (MHRD) has released numerous tasks designed to sell virtual learning -e-Pathshala, DIKSHA, National Repository of Open Educational Resource (NROER), National Programme on Technology Enhanced Learning (NPTEL), e-pg pathshala SWAYAM and, SWAYAM-Prabha DTH Channels. These interventions were brought to elevate the requirements of coaching regardless of the place of the colleges and institutes.

Importance Of Technologies in Teaching-Learning

Information and Communication Technology (ICT) is more and more turning into vital a part of the education system. ICT has absolutely modified the fashion of the functioning of the teaching and learning system. Learning through Computers and the Internet combinedly benefited from the "Just–in–time" opportunity of learning. ICT enables students to monitor and manage their learning, think critically and creatively, solve simulated real-world problems, collaborate, participate in ethical decisions, and be globally informed about problems and ideas, which can take a point of view. It also gives remote students access to specialized teachers and learning resources, providing administrators and policymakers with the data and expertise they need to work more efficiently.

The COVID crisis has accelerated the usage of technology in education. ICT promotes the development of digital literacy and all other kinds of development such as infrastructure development, logistics management, healthcare systems, livelihood creation, and public empowerment. for e-government. ICT plays a direct role in the field of education. It brings many benefits to schools, educational institutions, and communities.

Literature reveals that when well-utilized, ICT in schools has the potential to improve the teaching-learning process and brings active involvement of students in many ways. ICT promotes a learner-centric approach. Students get motivated when learning activities are challenging, authentic, multi-

sensorial, and multi-disciplinary. Schools tend to witness higher attendance, motivation levels, academic accomplishments, and effective communication as an outcome of ICT programs and projects. Teachersto gain as a result of ICT initiatives. They find ICT to be useful for teaching as well as for personal andprofessional work. The application of ICT in teaching makes teaching more innovative, interesting, interactive, easy, and effective. It complements the traditional teaching-learning process.

The academic establishments are installing efforts to lay out a well-targeted curriculum by integrating particular Information and Communication Technology (ICT) infrastructure into the transport of instructional programs, online curricula, and control structures for each college student and teacher. Hence the function of ICT withinside the study room is turning more and more prominent. Online evaluation and examinations: Appropriate bodies, which include the proposed National Assessment Centre or PARAKH, School Boards, NTA, and different diagnosed bodies will layout and put into effectthe evaluation frameworks for encompassing layout of competencies, portfolio, rubrics, standardized assessments, and evaluation analytics.

Challenges In Integrating Ict in Teaching-Learning

ICT becomes a challenge at the time when multiple students complete a project. At that time, it is difficult to differentiate who has completed what. Access to ICT in schools in some regions is hamperedby infrastructure limitations, due to a lack of investment and research into the use of ICT in education. The ability of teachers and school leaders to use ICT needs improvement which ultimately improves thequality of teaching and learning.

Esoswo Francisca Ogbomo(2011) indicated that the main issues and challenges of ICT in education means the implementation of ICT equipment and tools in teaching–learning process as a media and methodology. According to him the issues and challenges of ICT in education are generally to familiarizestudents and teachers with the use and workings of computers and related technologies as well as the social, ethical, technological, costs, and electricity challenges to mention but a few, of the use of ICT ineducation.

Some of the other challenges include: -

Lack of Trained Teachers - The main obstacle to the use of ICT in rural education is the lack of knowledge and skills. There is a shortage of dynamic teachers with formal ICT training. Furthermore, there is little regular quality training for teachers in ICT literacy.

Lack of time - At school, teachers usually have some tasks other than teaching. Moreover, they have to teach all kinds of subjects along with ICT. They don't have time to design, develop, and integrate technology into teaching and learning.

Lack of equipment – Public schools in rural areas lack computers and computer-related resources (printers, projectors, scanners, etc.). The inadequate ratio of computers per student. The range of private schools in these areas is very small or non-existent. There is a mismatch between complementary resources and a mismatch of ICT resources leads to low technology penetration and poor understanding of ICT in these institutions.

Lack of technical support – Rural schools face problems related to technical know-how, lack of ICT service centers, and lack of trained technical staff. Technical support professionals, whether provided by school staff or external services, her providers, or both, are essential to the continued viability of her use of ICT at a particular school. Without onsite technical support, a lot of time and money can be lost due to technical failures. One of the major obstacles to optimizing computer use in schools is the lack of timely technical support.

Lack of Internet facility – Rural schools typically have issues with the availability of ICT-related resources such as supporting infrastructure, uninterruptible power supplies, multimedia, projectors, scanners, and additional resources such as smart boards. ICT, which is lacking in most rural schools on the Internet. Slow or erratic connectivity of the internet destroys essence and influence.

English is the dominant language of the Internet. An anticipated 80% of online content material is in English. English language proficiency is not high, especially outside the urban areas which becomes a serious barrier to maximizing the educational benefits of ICT.

Suggestions

To deal with the challenges of using ICT – based teaching learning. There are various suggestions in this regard, including teachers having to be creative to make learning more engaging and practical for students. Teachers need time to stay up to date with the latest technology while collaborating with other teachers and learning how to use hardware and software.

We must opt for ICT-enabled classrooms so that teaching-learning becomes diversified by using various software like Google Classroom, EDMODO, SSPS, etc. These programs are to be had

alongside fundamental capabilities of gaining knowledge. Pilot studies might be undertaken to find out new methods of evaluation.

Training and incentives should be given to teachers from time to time. So that teachers will go through rigorous training in learner-centric pedagogy and on a way to end up with high-quality online content creators this will help them to know the usage of online coaching systems and tools. There can be an emphasis on the teacher`s function in facilitating energetic scholar engagement with the content materialand with every other.

Planning is important in the classroom as it ensures learning progress in the subject study as well as general skills in the curriculum. With planning, you can better manage student boredom in the classroom.Planning ensures that all students can learn from the curriculum and address content in key learning areas. However, one of the most difficult things you have to face as a teacher is planning ICT activitiesthat develop your students' ICT skills. The most effective way for a student to develop their ICT skills is to provide them with meaningful activities embedded in appropriate subject-related contexts.

Conclusion

ICT brings major changes in the field of education. Make the teaching and learning process more effective and interesting. The use of ICT- enabled study rooms in present-day schooling gadgets is usefulfor our society. In this teaching–learning process, mindset matters a lot. Attitude to distinct stakeholderslike teachers, students, parents, and management/system may also help in the fine functioning of ICT- enabled lecture rooms. A positive mindset closer to the use of ICT will smartly enhance our quality of schooling.

Teachers require appropriate education and improvement to become powerful online educators. It can'tbe assumed that a great instructor in a conventional study room will automatically be a great instructor in an online classroom. Aside from modifications required in pedagogy, online exams additionally require a distinctive approach. There are several challenges while conducting online examinations at scale, such as barriers to the sorts of questions that may be required in an online environment, handlingnetwork and power disruptions, and stopping unethical practices.

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Infrastructure for ICT-Based Teaching Learning

Published in 'The Research Dialogue' Peer-Reviewed / Refereed Research Journal and

E-ISSN: 2583-438X, Volume-02, Issue-01, Month April, Year-2023.

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