

ICT Integration in Indian Higher Education After Nep 2020: Challenges and Emerging Perspective

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Abstract

The role of Information and Communication Technology (ICT) has grown in significance across the global higher education sector. In India, National Education Policy (NEP) 2020 recommends integrating ICT to make higher education more accessible, qualitative, flexible (Government of India, 2020). This article explains process of implementing ICT in higher education in India after NEP 2020 and challenges observed. Some of issues identified in paper include digital divide, inadequate infrastructure, lack of digital skills of both teachers and students, institutional readiness. It also examines emerging trends in higher education, including blended learning, online platforms, technology-enhanced teaching. The research is largely based on review of recent publications from diverse sources. The results suggest that ICT may have an important role to play in enhancing higher education though its use is affected by policy, infrastructure, training. In that regard, it is essential to address those obstacles and achieve the goals of NEP 2020 and create a more tech-oriented and equitable education system in India.

Keywords: ICT Integration, Blended Learning, Higher Education, Digital Divide, NEP 2020, Educational Technology

1. INTRODUCTION

The adoption of ICT in higher education has been on the increase in the last few years, especially with the propagation of digital technologies in different sectors. Universities do not confine themselves to teaching on a face-to-face basis. Digital, multimedia resources, virtual classes have now become integral part of teaching-learning process. ICT has allowed assessing learning resources across geographical divides and empowering them to learn and embrace innovative methods of teaching (Pegu, 2014).

NEP 2020 is important initiative in India that aims at transforming education system. Another important focus of policy is utilization of technology to improve quality, equity, inclusiveness in education (Government of India, 2020). NEP 2020 promotes use of digital technologies in higher education using online learning platforms, virtual laboratories, “learning management systems (LMS)”. It also emphasizes need to develop digital infrastructure and enhance digital literacy of students and teachers.

Although integration of ICT is given much emphasis, its use in Indian higher education has been inconsistent. Infrastructure, internet connectivity, access to digital resources remain a problem

experienced by many institutions, especially in rural and semi-urban areas. There are also issues of lacking training, resistance to change, and low digital literacy levels among stakeholders in the effective use of ICT in teaching and learning.

Although ICT is widely understood as a revolutionary phenomenon in education as per NEP 2020, ICT implementation and impact remain disproportionate due to infrastructural, pedagogical, socio-economic issue.

Thus, it is important to consider possible benefits of ICT and problems that arise as a result of its introduction to higher education. This paper will address major challenges of ICT integration in higher education in post-NEP 2020 India and discuss emerging perspectives and potential solutions.

2. CONCEPT OF ICT IN HIGHER EDUCATION

ICT has emerged as important part of higher learning in recent years. It is not only about use of computers or internet, but it is also about a variety of digital resources, such as online courses, virtual classes, LMS, mobile applications. This has revolutionized teaching and learning landscape in higher education.

ICT enhances flexibility in learning in colleges and universities. Students have access to online lessons and study resources and can be involved in online discussions. It also helps universities to offer online and blended mode courses, which are particularly beneficial to students who are unable to attend classes due to distance or other limitations (Yadav & Kumar, 2024).

Teachers can also find ICT beneficial to them as it provides them with alternative means of presenting information and communicating with students. For example, they may employ multimedia presentations, videos, simulations, virtual labs to explain concepts. Other academic activities, including attendance, assignments, assessments can be managed by using ICT as well.

ICT has gained more significance in higher education with introduction of NEP 2020. It encourages adoption of technology to improve quality and access to education. It also promotes development of online courses, e-libraries, virtual classrooms. The implementation of ICT, however, is not uniform in institutions because of resource and infrastructure limitations.

Overall, ICT is playing a significant role in transforming higher education by making it more accessible, interactive, student-centred. Concurrently, its success will be determined by appropriateness and utilization of these technologies by institutions and stakeholders.

3. INFORMATION AND COMMUNICATION TECHNOLOGY UNDER NEP 2020

NEP 2020 is a strong case for use of ICT in education, especially in higher education. It recognizes important role that technology can play in improving access to education and its quality in India. The policy suggests application of technology in teaching, administration, assessment, academic management.

Online and blended learning are among initiatives listed in NEP 2020. This policy proposes a blending of classroom and online learning to enhance advantages of both. It emphasizes SWAYAM, DIKSHA, other online portals as important student and teacher resources. These portals are diverse in terms of courses, resources, content.

NEP 2020 also addresses digital infrastructure in learning institutions. It focuses on providing reliable internet connectivity and availability of devices and digital content to facilitate efficient use of ICT. This, and the fact that teacher training in its use is essential, is relevant, since not all teachers are likely to be familiar with it.

Other aspect is establishment of “National Educational Technology Forum (NETF)” whose purpose is to facilitate application of technology in education through sharing information, best practices, innovations. This implies that policy doesn’t simply try to integrate technology but also to ensure that technology is used effectively.

However, even though NEP 2020 has oriented incorporation of ICT in education, its implementation requires many factors that rely on willingness of institutions, resources, stakeholder support. Thus, in several areas, there is a necessity to implement it efficiently.

4. CHALLENGES OF ICT INTEGRATION IN HIGHER EDUCATION

Despite fact that ICT has revolutionized higher education, there exist certain challenges related to use of ICT. The problems include:

1. **Digital Divide:** Digital gap refers to the disparity between those students who can access digital technology and internet and those students who cannot. Devices and connectivity might not be available to Indian students (especially those from rural and lower socio-economic backgrounds). This limits their online access to education and creates imbalance in education.
2. **Lack of Infrastructure:** Not all institutions of higher learning are properly equipped with sufficient digital infrastructure, including smart classrooms, computer labs, reliable internet access. This makes it extremely difficult to apply ICT-based pedagogy, despite willingness of teachers and learners to adopt this.
3. **Limited Digital Literacy:** There is problem of digital literacy among teachers and students. The teachers may lack adequate training in utilization of online learning platforms, virtual teaching strategies, use of digital resources. At the same time, they can be technologically illiterate and experience difficulties with virtual platforms.
4. **Resistance to Change:** Educators and institutions may be reluctant to embrace new technology. Other teachers are used to traditional form of teaching and they cannot readily shift to technology. This slows down ICT integration process.
5. **Policy Implementation Issues:** NEP 2020 presents definitive roadmap of how ICT can be integrated but it is not implemented evenly. Unequal access to technology in higher education was caused by differences in funding, planning, administrative support.
6. **Technical and Maintenance Problems:** Software bugs, system crashes, network connectivity could impact teaching-learning process. Indicatively, in most institutions, technical support staff are also absent to address such issues.
7. **Financial Constraints:** The establishment and maintenance of digital infrastructure can be significantly expensive. Most institutions, particularly government colleges, are not adequately endowed and therefore, the implementation and maintenance of ICT projects is limited.

8. **Insufficient Training and Development:** Teachers should be regularly trained to utilize ICT optimally. However, institutions do not necessarily provide training sessions or workshops. This limits their ability to use ICT tools in classroom effectively.

5. EMERGING PERSPECTIVES AND OPPORTUNITIES OF ICT IN HIGHER EDUCATION

Nevertheless, beyond these concerns, there exist a great number of opportunities for ICT to transform higher education in India, particularly in the post-NEP 2020 era. These perceptions demonstrate how technology can be used to influence education system positively.

1. **Blended Learning Approach:** One of significant trends in higher education. This is integration of conventional in-class learning and online learning, which allows students to have the face-to-face experience and flexibility of online learning. It facilitates understanding as students can access recorded lectures, supplementary materials, self-paced learning. It also plays a significant role in continuity of education.
2. **Increased Access to Education:** ICT has increased access to education. Virtual classes, online courses, digital material allow students in remote and underprivileged areas to receive education without having to travel. This assists in erasing the geographical divide and enhancing diversity in education.
3. **Use of Digital Platforms:** E-learning sites like SWAYAM, DIKSHA, other online platforms play a critical role in learning. These websites provide various courses, video talks, resources. Learners can select courses of their choice and learn anytime, anywhere. They can also be employed by teachers in their lesson plans.
4. **Personalised Learning:** One of main advantages of ICT use is that it can offer individualized learning. It implies that students are able to study at their own pace, reevaluate areas that they feel are problematic, concentrate on their areas of weakness. ICT also offers feedback and monitoring performance to aid in evaluating learning progress.
5. **Improved Teaching Methods:** ICT also assists teachers in adopting more participative and creative teaching strategies. Virtual labs, animations, videos, simulations make students learn and understand much more easily. This is particularly helpful in educating complex concepts, as these concepts can be taught in interactive and visual ways to enhance understanding.
6. **Development of Digital Skills:** Through growing use of ICT in education, students acquire useful digital skills, which are vital in modern world. These skills consist of digital apps, communication, information management. They are highly sought after in the workplace.
7. **Global Learning Opportunities:** ICT provides access to global information and learning opportunities. Students can pursue online courses in any university across world, participate in webinars, interact with peers who may be in other parts of world. This assists them in understanding better and in adapting to global environment.
8. **Support for Research and Innovation:** ICT has improved research activities. Online journals, databases, resources are easily accessible. It can also facilitate cooperation among researchers of various institutions and nations, leading to exchange of knowledge and innovation.

6. CONCLUSION

Finally, ICT is now integral to higher education in India, particularly with implementation of NEP 2020. This policy has strongly indicated that technology should be integrated in teaching, learning, administration to enhance overall quality and accessibility.

Nevertheless, there are challenges associated with incorporating ICT in teaching and learning environment in higher education. Digital divide, insufficient infrastructure, limited digital literacy levels, unequal implementation among institutions all remain factors that hinder its efficacy. These issues demonstrate that introduction of technology is insufficient. Proper planning, investment, support are also essential in successful implementation.

Simultaneously, ICT also reveals some opportunities for future. Growth in fields of blended learning, utilizing digital platforms, developing digital skills in students are positive indications of change in education system. The utilisation of these opportunities can make higher education more inclusive, flexible, learner-centred, which can make ICT significant contribution.

In general, ICT can introduce significant change to Indian higher education, although its success will be determined by effectiveness of managing current challenges. Following efforts toward better infrastructure, training, access to equal opportunities in terms of using technologies, the objectives of NEP 2020 will be achieved, and educational system will be more efficient and technologically-driven.

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