Technological Evolution in Higher Education

Dr. Madhumita Baidya

Assistant Professor, Department of Education, Sidho-Kanho-Birsha University, Purulia

Priyanka Das

Research Scholar, Department of Education, Sidho-Kanho-Birsha University, Purulia

Abstract

Indian higher education sector mostly focuses on technological innovations to overcome challenges in the education scenario of 21st century. There are various approaches in teaching and learning which directly depends on today's modern technology. The maximum use of different electronic gadgets to facilitates in the teaching learning process plays a significant role in the higher level of education. The new education policy 2020, give importance to the inclusion of the uses of technology in higher education sector for the improvement of education. The present study identifies the technological innovations, present status of technological era

Key words: Educational technology, Digitalization, Higher Education, NEP 2020

1. Introduction

In the scenario of 21st century, modern technology is playing a crucial role in improving present education process. So, the new Education Policy 2020 emphasis on the growing use of digital technology in the level of higher education teaching and learning process. In the field of education, higher to lower-level authorities realise the necessity of ICT for the enhancement of quality education. The global lockdown in the pandemic period of COVID-19, each individual mostly worried about the academic progress of their children and this pandemic period has taught people about the necessity of ICT intervention to ensure uninterrupted teaching-learning process. Normally, day by day the uses of technologies like mobile application, computer, smart board, projector, speaker etc are increasing rapidly. The most useful tools in this present digital era are multimedia, technology, blogs, and social networks (Fojtik, 2014). The government of India is trying to implement various initiatives to make digital India. In higher level, the government is emphasising to set up virtual universities for the fulfilment of the objectives of NEP 2020. The Government of India is promoting the uses of new technology and innovations

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to empower knowledge economy including education. It was very challenging to adopt new technologies in the initial stage but in present it become more useful and adoptable to all.

1.2. Capacity expansion in higher education

Institutional capacity indicator	1950	2021-22
Number of university level institutions	25	1168
Number of colleges	700	47,844
Number of teachers	15000	15.10 lakh
Number of students enrolled	1 lakh	418.43 lakh

Source: Annual Report of UGC, 2021-22.

2. Digital Education and Higher Education Institutions

In the level of higher education, e-Governance cell was established with the help of INFLIBNET centre. Various web portals and applications are developed in HEIs to provide the facilities of online application and information. ICT is very crucial thing to provide transparent environment in the work of HEIs under various UGC schemes and activities. UGC provides University Activity Monitoring Portal (UAMP) which facilitates universities to upload necessary details about various activities undertaken by HEIs. HEIs may regularly update their necessary contact details on this specific portal for students, faculties and other higher-level authorities. According to Annual Report of UGC, 2021-22 "Two hundred and Eighty-Nine (289) Universities have come on board to accept credit transfers for courses offered through the SWAYAM platform". National Academic Depository is the online store house of academic awards where academic institutions have been uploaded 12.94 Crores academic awards data through National Academic Depository -Digital Locker portal (UGC, Annual Report, 2021-22). Thus, technology play a great role in the field of higher education.

3. Innovative digital Teaching-Learning Approaches

Blended learning approach: Blended learning is well-known innovative concept, which makes a combination between online and offline learning. Through this approach students get the opportunity to learn in traditional mode as well as online mode. This approach provides students and teachers more time for discussion.

Flipped classroom: Flipped classroom is the type of blended learning which is innovative teaching method. In this approach teachers provide recorded lecture, digital text to student to learn at their own pace and they acquire foundation information in advance. So, when learners attend class on this topic, they become more active and interested and able to interact with teacher.

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Google classroom: Google classroom is another type of blended learning platform. It is free platform for educational institutions and developed by Google. Using this platform teachers simply and easily manage classes, grading assignment and distributing digital data in a paperless way. This is the open and fearless collaboration and communication method where teachers able to monitor each student's achievement reviewing the history of document.

Programmed instruction: Teachers organize programmed instruction to provide new content to student in a series of small step through logical and sequence way. Programmed instruction ensures active participation of students by regular and immediate feedback. Programmed instruction is designed to make students enable to learn independently with repetition.

Padlet: Padlet is a digital bulletin board. It is one of best digital educational communication platform where teacher easily can post texts, images, files, videos, links to make students more informative. Similarly, students are facilitating to share and post their opinion or any issue related to education. It also helps to make interactions between teachers and students.

Teleconferencing: Teleconferencing is a live audio or video meeting between two or more than participants for interaction. Through teleconferencing teachers organize virtual interactive classroom by using various online platform like YouTube, Zoom, and Google meet etc. Participants join teleconference platform through various devices like smartphone, laptop, composure and tablets.

4. Digital initiatives of the Government

UGC and MHRD launched some digital initiatives during the pandemic period of COVID-19. These are innovation in the field of technology and have a significant effect on academic improvement of students. Some effective initiatives are discussed below:

- **e-GyanKosh:** e-GyanKosh is a National Digital Repository which store, preserve, distribute and index digital learning resources developed by IGNOU. The main purpose of e-GyanKosh is to provide course materials, question papers, e-books and other educational content etc. It makes learning materials accessible to all students. It also helps to promote open access of educational resources.

- **e-Yantra:** The initiative e-Yantra aims to nurture engineers through the solution of practical and real-life problems which provides the opportunity of hands-on learning and make learners aware about local challenges. It also provides learners prevailing

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engineering and robotics higher education frameworks globally including remote students.

- **VIDWAN:** VIDWAN is an e-learning portal which is maintained by Information and Library Network Centre. It is designed to meet the needs of scientists, researchers and faculty members of institutions. It is the active and trusted portal of research, where scholars get free platform to display their research expertise to policy makers.

- **Gyandhara:** IGNOU Gyandhara is considered as one of the useful links for internet audio active learning. IGNOU launched Gyandhara when the nation goes through lock down period of COVID-19. Gyandhara where teachers and experts are discussing previously selected topic and it helps students to be alert about class and easily pay attention. The students get the opportunity to communicate with teachers and experts through online chat, email, telephone etc.

- **Virtual lab:** It is one of the important initiatives taken by the ministry of education which is under the National Mission of Education. The main objective of this initiative is to provide various disciplines of science and engineering learners remote-access of simulation-based labs where teachers and students are equipped with various tools for teaching and learning.

- **National Digital Library of India:** The National Digital Library of India is a virtual repository of learning resources which provide search or browse facilities. It also provides free of cost access of textbooks, audiobooks, lectures and articles etc. All materials are available in 10 most widely used Indian languages. The National Digital Library of India is managed by Indian Institute of Technology, Kharagpur.

- **SAKSHAT:** SAKSHAT is the initiative of Indian Government. It is launched to promote online education and to provide learning resources to learners for the better achievement of academic including technological knowledge. This portal provides e-book, multimedia content, lectures, educational materials and collaborative learning environment. It also provides a single integrated platform to all students, researchers including teachers.

5. National Education Policy 2020 and Digitalization

The National Educational Policy 2020 emphasis to highlights the relationship between education and technology at all levels of educational infrastructures. The learning ecosystem will be digital for each stakeholder of education sector like students, teachers and educational

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policy makers. NEP 2020 focus on the intervention of technology in Indian education sector especially to make education easily accessible to all, maintain equity in educational opportunities, provide quality education to all, affordable to all and maintain accountability. Access, equity, quality, affordability and accountability all are the fundamental pillars NEP 2020. Digitalization of education play a great role to developed skill based and value-based education.

The another aims of NEP 2020 to establish multidisciplinary universities by 2030 with the help of modern technology. The new education policy talks about the adoption of Public Private Partnership mode and blended mode of learning. This policy declares that 6% of India's GDP should be spend on education sector to equip educational infrastructures with digital environment. NEP 2020 launched National Educational Technology Forum for the purpose of development e-courses in regional languages, encourage central and state government to use technology in their education system and clarify the direction of research and innovation through digital information. Similarly, NEP 2020 focuses on teachers' professional development through some digital platforms like DIKSHA, Firki and SWAYAM where teachers learn about innovative approaches of teaching and effective uses of modern technologies to make teaching learning process more effective and interactive.

6. Conclusion

There is no doubt about the positive contribution of technology in the field of education. So, it is clear that policy makers need to focus on expansion of ICT infrastructure from higher to lower level of education. There are various innovative digital teaching learning approaches but most of the teachers are unable to adopt new approaches. So, it is very necessary to launch faculty development programme to develop digital skill among teachers. Digitalization in education helps to enhance the quality of education which determine the future of our country. The global lockdown helps people to realise about the necessity of technology and its usefulness in the field education.

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