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Digital Transformation of Higher Education and Pedagogical Engagement of Teacher Educators: Before and After Pandemic COVID-19

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ABSTRACT

Sudden announcement of shutting down the countries due to global pandemic, not only brought the economic and social activities at stake but made a fuss with education sector too. Online or digital education served the education as life line during those days and evidently introduced a shift in higher education from paper pen based traditional system of education to highly digitalized modern classroom system. Since the COVID-19 pandemic, where instruction is now conducted remotely and on digital platforms, there has been a noticeable surge in online learning. The challenges faced by teacher educators during COVID-19 are highlighted in this paper together with the situational changes that were evident in higher education in India, notably in teacher education, before and after the pandemic.

Keywords: Digital Transformation, Teacher Education, Pandemic COVID-19

1.1 Introduction

Today's teachers use various classroom technology including smart boards, tablet computers, cellphones, projectors, digital films, games, etc. as excellent tools to assist students' learning because we live in the 21st century, where learning is student-centered and engaging. Such technological or Information Communication and Technology (ICT) integration with education as a tool gives room for exploration and the creation of new knowledge. Therefore, current technology can be employed to upgrade a typical classroom into a cutting-edge learning environment. Although there has previously been some digital transition in Indian higher education before Covid-19, the epidemic has considerably accelerated the process. Larger number of experiments and more than a decade experiences with distance education system facilitated the

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students in continuing their education, though, only top tier and private education institutions could were the major one.

Technology-enhanced learning, commonly referred to as e-learning or digital education, is the creative application of digital technology that benefits both teachers and students. It fosters in-depth conversation by fusing in-person engagement with digital or online learning.

Digitalization in education is the use of laptops, smartphones, tablets, the Internet, software programmes, and other digital technologies to instruct students of all ages in a variety of teaching-learning activities, such as transactions, tests, entertainment, self-study, etc.

"It is a perfect blend of digital tools, content, and instructions from the educator. It also offers various advantages to students like exposure to new opportunities, personalized learning, high engagement, overall development, and better results. Digital education has wholly transformed the traditional chalk and blackboard culture. The pen and paper are replaced by the computer or tablet, there are online whiteboards for student interaction and face-to-face lecture is replaced by online lecture or video lecture. It will grow even more in the future as more and more schools and educational institutes are adopting this modern education system." teachmint@wp

1.2 Rationale of the Study

The desire for more highly qualified performance in our professions and as citizens has resulted in an increase in the number of youths receiving access to higher education over the past few decades. "The emancipatory and transformative potentials of the ICT in higher education in India has helped increase the country's requirement of higher education through part- time and distance learning schemes. It can be used as a tool to overcome the issues of cost, less number of teachers and poor quality of education as well as to overcome time and distance barriers" (MC Gorry, 2002). Distinctive rise of online learning during COVID-19 pandemic has changed the education dramatically whereby teaching is undertaken remotely and on digital platforms. That is the reason that higher education is now demanding to be digitalized as of day to day life style.

1.3 Major ICT initiatives to digitalize Higher Education in India

In 1971, the Indian government's Ministry of Education and Social Welfare recognised the value of education technology for raising educational standards and included a project centred on it in its fifth five-year plan. The following four sub-schemes made up this project:

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- Setting up an Education Technology Unit in the Ministry of Education and Social Welfare.
- Establishing a Centre for Education Technology (CET) in the NCERT.
- Assisting States for setting up Education Technology Cells and their programmes on 100% basis.
- empowering a select few educational institutions to implement education technology programmes

As a result, the unit was established under the Ministry in 1971, and a CET was established in the NCERT in 1973. From 1972–1973 onward, Education Technology Cells were also set up in many states.

- Various programmes run by government through UGC, NCERT and IGNOU which gave a direct push to digital higher education are: Swayam (online courses), Swayamprabha (digital courses on TV), National Digital Library (for e- content), e- PG Pathshala (e- books up to PG), Shodhganga (reservoir of Indian theses), e Shodh Sindhu (e- journal), FOSSEE (Free library and open source software for education), Virtual Labs, Shodh shudhhi (plagiarism detection software), MOOCS, CEC- UGC You tube channels and many more.

• The recently created NEP 2020 envisions education with "Technology use and Integration" to provide students with a pathway to making India a globally recognised knowledge economy and an empowered society in the digital age. Additionally, it is anticipated that ICT integration will open up education to those living in rural sections of the nation.

Beside policy perspective, Through ICT, Indian higher education underwent a number of technological advancements, such as the transmission of educational programmes by IGNOU and IITs on Gyan Darshan and Gyan Vani. Every day, educational programmes are broadcast on the national channels Gyan Darshan and Doordarshan as part of the UGC's country-specific classroom initiative. IGNOU launched E-Gyankosh, a knowledge repository, in 2005 with the goal of preserving digital learning resources. Almost all of the printed IGNOU material has been converted to digital form and posted to the repository. Another cooperative project between IITS and IISC that promotes technology-enhanced learning is the National Programme for Technology Enhanced Learning (NPTEL), which was introduced in 2001.

2.1 Review of Related Literature

Recent studies conducted on similar aspects of the study were reviewed and mentioned here.

According to Krishnamurthy (2020), universities have undergone a significant shift to online learning as a direct result of the social distancing measures imposed by Covid and to sustain service

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during times of emergency. As per the opinion of author “current social distancing measures will last for some time, education institutions must thoroughly redesign their service to face the new environment. To construct a well-designed online learning experience, universities should develop digital learning methodologies and provide digital learning contexts, tools, and support systems.”

Dwivedi et al, 2020, Govindrajan and Srivastava (2020) pointed out the urgency of converting materials and methods rapidly for suitable online delivery. They experienced a sudden, forced transformation as a result of their situation. Global remote teaching experimentation was compelled by the pandemic.

This new form of education, which Marinoni (2020) referred to in his study as "emergency online education," presented unprecedented difficulties for both staff members and university administrators who needed to quickly reinvent themselves in order to maintain campus operations as well as students who needed technical assistance. In a virtual environment, he continued, "universities must transition from a predominately "lecture-based learning" approach to "problem-based learning" methodologies, which actively involve students."

Expressing the historical development of digitalization of higher education, Jensen (2019) suggested that, “although the process of digital transformation in higher education began years ago, the pandemic has accelerated it, leading to fundamental changes in a question of weeks. This technological transformation of education involves profound changes in teaching methodologies, essential competencies, and assessment methods, as most HEIs recognize.” Author suggested further that such transition from “in-person” to virtual education will have significant implications for the entire learning process, not only extensively modifying methods for assessing learning outcomes but also requiring reconsideration of the skills and competencies required of students in this new setting.

Recognizing the needs for digital education Mishra (2020) emphasised the value of having the right infrastructure and technological platforms (such as Blackboard, Moodle, and Microsoft Teams), reliable servers that can handle the virtual workload, and methodological training for professors and students for online delivery using all of the available technical and educational resources. The author also mentioned that teachers have access to a wide range of webinars and manuals, and that most colleges have agreements with businesses like Microsoft that offer Office or Teams resources or technical platforms to improve virtual communication. Numerous online communication tools and platforms are readily available on a global scale to aid in the digitalization of the entire teaching-learning process in the Covid-19 environment.

In spite of the pandemic that affected higher education, technologically based instant messaging tools (WhatsApp, Telegram), video conferencing tools (Zoom, Skype, Google Hangouts, Google

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Meet), and educational apps (Google Classroom), among others, could maintain a personal connection with students through pedagogical transformation and served as the first step in the digitalization of higher education.

3.1 Objective of the Study

To study the perception of teacher educators regarding transformation in pedagogical methods and challenges in online platform in teacher education programme.

3.2 Methodology

For the purpose of obtaining perception of teacher educators about transformation in pedagogical methods, a survey questionnaire was constructed and information was collected through google form and was interpreted qualitatively. The questionnaire covered the pedagogical methods followed by practitioners before and after COVID-19, their perception about more suitable pedagogical method (traditional or modern technology based) and suggesting ways to make it more feasible. For this purpose, 30 teacher educators from different teacher education colleges in East Delhi (B.Ed. colleges affiliated to GGSIP University and D.EL.Ed. affiliated to SCERT, Delhi) were selected randomly.

For obtaining information about challenges in online mode of teaching- learning, data is not directly collected from students but obtained from 5 teachers dealing with teacher education programme on convenient basis through focused group discussion and was analyzed as mentioned below.

3.3 Result and Analysis

Following are the results of the study:

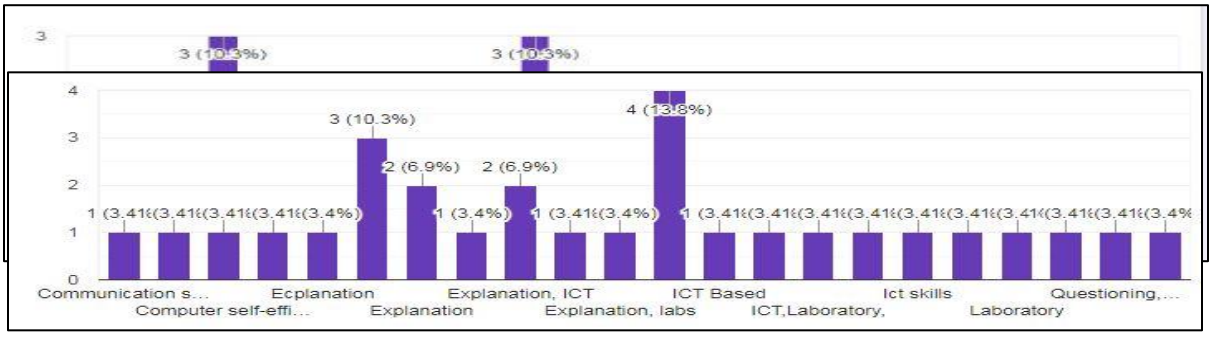

Fig 3.3.1- Methods followed by teacher educators before Covid-19

Fig 3.3.1- Methods followed by teacher educators after Covid-19

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- The results show that most of the teachers have been using commonly known traditional methods of teaching like project method, discussion, demonstration within laboratory, classroom or through ICT room, lecture and inquiry methods before pandemic in face to face teaching- learning situation for which practicing various skills like- ICT competency, explanation skill, laboratory skills were assumed highly important.

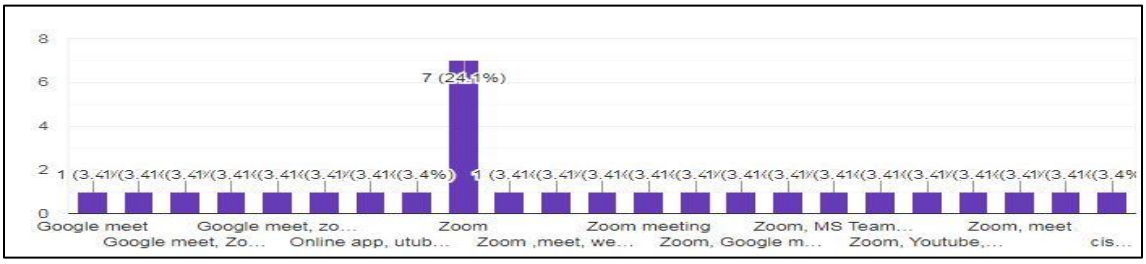

Fig. 3.3.3- Online meeting platforms opted by teacher educators during online teaching

- During COVID- 19, majority of teachers adopted various online meeting platform among which Zoom, Google meet, MS Team, Cisco Webex, Youtube channels, MOOCS, SCERT Apps, Google classroom etc. were mostly followed among which Zoom online meeting platform was majorly accepted by teachers and students due to its free services and easy access. Only few institutions had licensed platforms to communicate online and most of the teacher education institutions opted free services of such online meeting Apps.

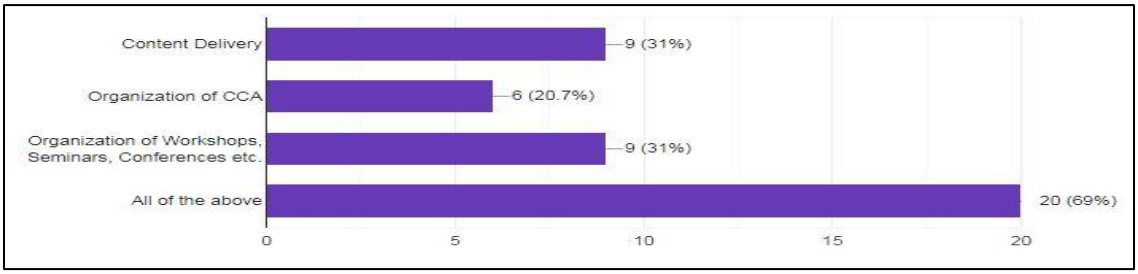

Fig. 3.3.4- Activities conducted by teacher educators in digital mode

Fig. 3.3.5- Professional development activities initiated by teacher educators during Covid-19

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- As per the results, teachers assumed digital form of higher education as successful in terms of content delivery, organization of workshops, seminars, conferences and CCA too. Majority of teacher educators used digitalized form of communication for their own professional development like attending workshops, webinars, conferences, paper presentations and guest lectures etc.

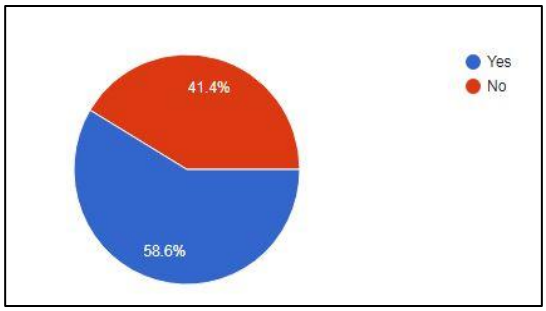

Fig. 3.3.5- Perception of teacher educators regarding digitalization of higher education

- Regarding digitalization of higher education, majority of teacher educators (58.6%) emphasized to promote this with the help of various digital support and tools for various purposes- International meetings, blended mode of learning, for sharing information and 41.4% digital mode of higher education has also been demanded by teacher educators.

  ➢ As the study is also focusing on challenges faced by teachers as well students while communicating during COVID-19, hence, the results concluded that the students and teacher educators both faced personal and technological or pedagogical challenges which are presented below:

Personal challenges faced by Students	**Technological challenges faced by Students**
• Mental stress and trauma due to existing situation and lack of face to face communication. • Financial issues • Space allocation in the house • Frustration due to the allotment of various assignments and their fulfillment.	• Difficulty in transition from conventional way of learning to techno based learning. • Non- fulfillment of allotted assignments. • Unreliable internet connectivity and the problem of electricity in remote areas. • Hardware issues like mobile phones battery issues, non- availability and heating problem of laptop, desktop, non- availability of microphone etc.

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Personal challenges faced by Teachers	Pedagogical/ Technological challenges faced by Teachers
• Household responsibilities and younger children at home disrupting teaching. • Frustrating experience as switching from one platform to another based on hit and trial was time consuming.	• Switching to online mode was a challenge for teachers which required more time and preparation. • Less familiarity with technology and organization of online meetings for delivering lesson. • Discipline related problems. • Difficulty in task allotment • Difficulty in organizing practical activities as well assessment of students.

4.1 Conclusion

The sudden and universal transformation of higher education started a new chapter in education system especially in teacher education as this area of higher education is the creator of all professions, hence, the digitalized form of education not only affected the teaching- learning situation but pedagogical engagements of teacher educators too. Although, this created many difficulties and challenges before teachers and students both but after experiencing digital mode of higher education, digitalization of higher education including teacher education is assumed as significant in terms of professional development, ICT skill enhancement and blended learning approach.

5.1 Suggestions

The study concluded following suggestions to make digital transformation of higher education smooth and effective:

- A very interesting finding of the study is that nobody accepted or denied the significance and adoption of online education. Almost 59% teacher educators agreed that higher education, specifically teacher education need to be digitalized but along with physical mode i.e. hybrid mode.

- Almost 41% teachers demanded for limiting the higher education only up to the organization of international conferences, webinars and symposiums to strengthen higher education via online mode of communication.

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- It is also suggested by the study to adopt and practice blended approach of teaching-learning as we cannot immediately shift from conventional ways of education to completely modern and technological ways of teaching and learning.

- For this, strong support system is also suggested to be provide the facilities like- high speed of Wi-Fi and network connections, establishment and installation of virtual labs, software etc. and training of teachers in using various apps and software efficiently.

- Development of e- content in various forms- PPTs, Video tutorial, blog writing, creating simulators etc. have been suggested by them for smooth digitalization of higher education.

- Availability of appropriate hardware and software facilities for teachers and students both and enabling the students to choose and use right content.

- Security concerns, plagiarism and appropriate utilization of ICT resources by students and teachers need to be taken care.

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