An Exploration of Higher Education Teacher Education programmes: During and post-COVID-19

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Abstract

The higher education system in India is one of the largest systems in the world with around 1000 universities and 50,000 colleges and institutions. These, together, cater to nearly 39 million students. The COVID-19 pandemic has significantly affected the higher education system including the teacher education institutions. India too, like many other countries had to shut down their institutions and moved unexpectedly to online teaching and learning. The teacher education programmes in India are heavily dependent on the conventional approaches to teaching-learning and less is evident about the effective integration of technology in teaching. Literature reviews indicated that researchers have not examined how well the student teachers are able to learn the course content and obtain practical knowledge about the profession in the context of teacher education. It is therefore important to explore how the student teachers cope with the learning situation during online instructions in teacher education courses, particularly in the pandemic situation when the New Education Policy (2020) has been released. The purpose of the study is to assess the degree to which pre-service teachers in teacher education programs can manage the theory and internship components of online learning during the COVID-19 epidemic. The method selected was qualitative research through an open-ended questionnaire that asked student teachers to reflect on their experience of learning in the teacher education programmes they took after all instruction went online along with the challenges they encountered which affected their learning in theory and internship component. The implications of this study for the new normal in the teacher education programmes in the post pandemic world focusing on implementation of NEP 2020 in the light of teaching, learning and assessment practices was discussed.

Key words: *Higher education, teacher education programmes, NEP (2020), online/ blended education, post pandemic, online internship, online teaching, ICT initiative*

Introduction

The New Education policy (2020) has replaced the 34-year-old National Policy on Education framed in 1986. It laid stress on the transformation of teacher education in order to professionalize teaching as a profession. Teacher education needs to build capacities in the teacher to construct knowledge, to deal with different contexts and to develop the abilities to discern and judge in moments of uncertainty and fluidity, characteristic of teaching-learning environments (NCFTE, 2009). A new and comprehensive National Curriculum Framework for Teacher Education, NCFTE 2021, will be formulated by the NCTE in consultation with NCERT, based on the principles of this National Education Policy 2020. NEP (2020) stated – "Teacher education is vital in creating a pool of school teachers that will shape the next generation. Teachers must be grounded in

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Indian values, languages, knowledge, ethos and traditions including tribal traditions, while also being well-versed in the latest advances in education and pedagogy". "Teacher education means programmes of education, research or training of persons for equipping them to teach at pre-primary, primary, secondary and senior secondary stages in schools, and includes non-formal education, part-time education, adult education and correspondence education" (The NCTE Act, 1993).

Several Commissions/ Committees were appointed after India's Independence to make recommendations on higher education development including teacher education which emphasised on the professional preparation of teachers: University Education Commission (1948-49), Secondary Education Commission (1952-53), Ford Foundation Term (1954), Pires Committee (1956), Education Commission (1964-66), National Commission on Teachers–I (1983-85), The National Policy of Education (NPE) in 1986, The Acharya Ramamurti Committee (1990), Yashpal Committee (1993), National Knowledge Commission (2007), National Curriculum Framework for Teacher Education (NCFTE) 2010, Centrally Sponsored Scheme of Teacher Education, 2012, J. S. Verma Commission (2012) . NEP (2020) also refers to Justice J. S. Verma Commission (2012) recommendation and emphasised an urgent need of revitalization through radical action, in order to raise standards and restore integrity, credibility, efficacy, and high quality to the teacher education system (para. 15.2). The novel epidemic situation confronted teachers with entirely new challenges and more complicated struggles with online teaching (Abiky, 2021). Guidelines were issued for compliance by all NCTE recognised TEIs related to online classes which included TEIs should explore the possibility to encourage technology enabled learning as well as conducting online classes. Internship and field engagement domain shall be as per the direction of the affiliating body/University /Institution under the prevailing situation. The Ministry of Education (MOE) had taken various initiatives to promote digital learning under 'National Mission on Education through Information and Communication Technology' (NMEICT) during the pandemic to provide effective learning during pandemic. A comprehensive digital initiative of the Indian government covering the wide spectrum of school and higher education was taken to facilitate access to education such as PM eVidya, Swayam Prabha TV Channels for open schools and pre-service education, E-textbooks, and National Repository of Open Educational Resources (NROER) (https://www.education.gov.in/hi).

Recent studies have highlighted the challenges faced by the student teachers and teacher educators during the online teaching along with the opportunities and support (Patra, Sundaray, & Mahapatra, 2021; Yapar & Dayananda, 2022; Hill-Jackson et al., 2022., Hertz et al., 2022; Dennen, 2022; Arslan, 2022; Mulvihill, 2022; Ugalingan, 2021). Yapar and Dayananda (2022) found teachers and administrators perceived many challenges in teaching online and much disadvantages as compared to the benefits/ advantages in teaching online. "Effective support and opportunities for teachers to develop and apply their competences is crucial for maintaining both motivation and high standards in the profession" (Hertz, 2022). Patra et al. (2021) identified internet accessibility, awareness of knowledge of faculties and students in technology and lack of technical support are the major concerns and challenges faced by the higher education teachers during online teaching. However, Arslan (2022) found teacher candidates were more positive towards assessment of learning during online as they perceived online tests as more independent and comfortable in the home environment and without a proctor. On the other hand, possible technical problems during the test were one of the frequently mentioned issues in the student views regarding online testing. However, Debrah et al. (2021) found that the expense of internet bandwidth, a lack of infrastructure, and bad internet connectivity

made online teaching ineffective. University students perceived a lack of student-teacher interaction, an inadequate home learning environment, and the ability to avoid direct participation during the video call as the major concerns, according to Oliveira Dias, Albergarias Lopes, and Teles' (2020) study on students' engagement in online learning. One of the key components of becoming an effective teacher is completing an internship, which offers the chance to gain first-hand experience with carrying out the responsibilities and obligations of a teacher (Mante-Estacio, & Ugalingan, 2018).Student instructors are supported in reflecting on their own teaching experiences during their internships, and this process may help them form their beliefs and motivating orientations toward teaching. (Michos et al. 2022).According to Ugalingan and Valdez's findings published in 2021, the internship experience presented obstacles in terms of technical issues with online instruction. However, chances for cooperation, learner autonomy, and modeling tactics were also reported.Online internships, according to teacher educators, are not possible and are seen as a difficult undertaking for institutes of teacher education (Cho & Clark-Gareca, 2020).The current study is in line with ongoing discussions about various approaches to carrying out teacher education programs when a pandemic is occurring. The online theory and internship experiences of the student teachers with regard to teaching, community engagement, participation in extracurricular activities, and the work culture of the school are, however, only partially revealed by empirical investigations.

Research Questions

The paper seeks to address the following research questions:

- In what ways the online learning experiences in theory subjects was helpful to pre-service teachers and how they cope with the challenges brought about by the pandemics in the learning process?
- What are the student teachers' online internship experiences with reference to teaching, community engagement, participation in extra activities and work culture of the school and what challenges do pre-service teachers encounter during online internship programme?

Further, the paper also proposes a framework for the TEP with focus on the vision of NEP 2020 considering the key inferences and analyses of the circumstances that might be made in the post-pandemic era in the discussion section.

Methodology

The current study used multiple data collection methods, namely online open ended questionnaire survey and semi-structured interviews, to achieve the triangulation of data. An open ended questionnaire was devised to collect information about online learning experience of the lecture, challenges encountered in the sessions and online internship experiences as a part of the teacher education course with the in habitations and lesson learned. The open ended questions were intended to allow participants to record the points which they saw as most relevant. The survey was done through google form which were given to 272 students pursuing elementary and secondary teacher education course from the different parts of India from September and October 2021 at which time teacher education colleges were completely or partially to be opened. The teacher education institutions situated in both rural and urban parts of India were selected. A semi- structured interview was done to determine the veracity of the participants' reflections with 15 student teachers who have completed the questionnaire and the interviews were conducted as the video call lasted for half an hour on an average and were later transcribed. Each student teacher described their learning experiences of the theory and internship component during the COVID-19 outbreak.

The participating student teachers pursuing elementary (20.4%), secondary (general) with 75.6%, secondary (special education) with 2.2% and post-graduation programme (4%) in education, 89.6% were female; 10.4% were male. 66.7% of the student teachers were from institutions situated in urban area and 33.3% were from rural area. The summary of the demographic profile of the sample participants is given in Table 1.

In analysing the data, codes were identified from the open ended responses and interviews. The repetitive pattern of keywords across the data was identified which were further classified into themes. From the data, themes were classified as challenges/ concerns and opportunities / benefits of online teaching and learning responded by the student teachers. There were several themes found, which can be divided into opportunities and problems.

Results

Due to the sudden shift to online teaching and without much preparation, dynamics of communication and effective implementation of online classes were the major concerns (Tarrayo & Anudin, 2021; Ugalingan, & Valdez, 2021). For designing an effective learning environment, learner centric approach, meaningful online teaching tools and technology and alternative means of assessments and assignments are the key components (Carmen Carrillo & Maria Assunção Flores, 2020).

The succeeding sessions elaborate on the experiences of challenges and opportunities of the student teachers in theory and internship component.

Table 1

Demographic profile of the sample participants

Demographic Variable		**N= 168 Percentage**
Gender	Female	89.6%
	Male	10.4%
Age	17-19	3.3%
	20-22	21.5%
	23-25	35.6%
	25-30	23.3%
	30 and older	16.7%
Course	D.El.Ed.	20.4%
	B.e.d. (general)	75.6%
	M.ed	4%
	B.ed Special education	2.2%
Locale	Urban	66.7%
	Rural	33.3%

1. Experience of online learning in context of the theory subjects

1.1. Opportunities

The results of the study indicate that students were satisfied with the online teaching for theory subjects been imparted by the teacher educators. It reflected the preparedness of the teacher educators for online teaching. It can be concluded that only 8.9 per cent of the teacher trainee have shown concern regarding the learning of the theory component during the pandemic. However 91.1 per cent of the teacher trainees were satisfied with the online teaching related to theory component and majority of them experienced it learnable experience though they mentioned it was difficult in the initial phase of online teaching but with the time, got adjusted and made a new learning online experience. From the key words, major themes as a learning experience during online teaching classes that emerged from the responses are: usage of tools and technology, varied pedagogical approaches, enhancement in the communication skills, flexibility of class participation time and self-paced study were the key factors that contributed to the students' positive experiences. Although the difficulties seem to influence both teachers and students, faculties and teacher educators have created techniques to boost their interaction with student teachers. In particular, using chat features in Zoom or Whatsapp or cloud-based platforms/apps (like Google Docs) has allowed them to engage in activities with their fellow students and teachers. The online learning experience of the student teachers for theory classes had facilitated learning opportunities while there were challenges also but it has been discussed separately in the next section.

Table 2

Grade, percentages, codes and themes emerged from the participants responses

Grade	Percentage	Codes	Theme
Poor	8.9%	Disinterested, network issue, online wasn't as good as offline,	Internet connectivity
Good	78.6%	Nice, amazing, comfort, learning of apps, safe and productive, social connected through Social media , interactive, google as best source of knowledge, self-learning, time saving, boost of confidence, development of cognitive skills, cooperation of teachers, video and ppts as a source of learning, doubt clearing sessions	Technology enabler, self-confidence, cooperation of teachers, technology tools
Mixed	12.5%	Not good but convenient, compromise, eye sight issues, usage of technology, teacher cooperation but poor social and emotional development	Health issues but convenient, cooperative teachers but lack psychological development

During an interview, students reported on the varied teaching skills used by the teacher educators with a scope of wider exploration of the resources. This was clearly explained by the student teachers. For instance:

It was a great experience and I became more social and specially it made me more close to my mates and teachers. It also helped me to learn something new. Online Learning is helpful among students and teachers as it increases the core area of exploring things online and students

also increase their pace through moocs courses. In online learning we have to come across many phases. We get to know the use of technology and also the theory part was taught in a unique way with the use of technology.

2. Challenges

Students faced many technical difficulties that hinder and slow-down the teaching–learning process (Favale et al., 2020). Similar to other studies (Adedoyin & Sokyan, 2020; Donitsa-Schmidt & Ramot, 2020; Rospigliosi, 2020; van der Spoel et al., 2020), access to internet was the major challenge faced by the student teachers. Online Internet connectivity, non-access of library and other material, lack of clarity of topics, lack of face to face interaction, indiscipline, health issues related to eyesight and lack of conducive learning environments were the few factors that inhibited learning during online classes. Wang, J., Yang, Y., Li, H., & Aalst, J. (2021) emphasised online instructors should create a friendly online learning environment, facilitate active discussion and purposeful reflection and create opportunities to promote students' open communication, group cohesion and meaning construction. Table 3 clearly indicates the major challenge encountered by student teachers during the online classes was internet connectivity and least is the poor learning environment due to distractions at home and lack of proper sitting space in a silent environment.

Table 3

Themes, categories, percentage and ranking of challenges experienced by student teachers during online theory classes

Themes	Percentage	Ranking	Codes
Internet connectivity	30.7%	1	Lack of clear voice, disconnected in between, invisibility of ppt, technical problem due to weather, limited storage of data, time to connect
Non-access of institution library and other resources	3.5%	7	Interaction with students through online mode, sharing e- content, Unavailability of study material, non-availability of all topics in one book
Lack of clarity of topics	13.5%	5	Maths and science subjects, detailed description missing, terminology , computer subjects,
Lack of face to face interaction	16%	2	Practical experience, lack of creativity and explanation, imagination skills
Indiscipline	4.5%	6	Lack of seriousness of batchmates, distractions
Eye sight	14%	4	Gazing of screen for long duration, using mobiles due to lack of laptops/ desktops
Poor learning environment	2.5%	8	Too much distraction at home, missing of peaceful environment
No Challenge	15.3%	3	online way to learn is good platform, nothing, learning improved, good, cooperative, accessible and equipped teachers, more interested online

Factors related to connectivity, sense of isolation, health concerns, difficulty in practical subjects are exhibited while they shared experience during interviews. One of the student teachers narrated:

I took most of the classes online during the Teaching Practice as the schools were closed due to COVID-19 pandemic. I teach students offline for only 6 to 7 days. But these 6 to 7 days helped me to understand the real classroom problems and needs of the students as many of the students were not able to attend online classes conducted by me as they belong to rural areas where there are a lot of network issues. But, I on my behalf took all the online and offline classes honestly using proper TLM like charts, paper cuttings, real objects and models etc. of science and mathematics so that students may not face any problem in understanding any topic.

Experience of online learning in context of the internship

1. Teaching experience during Internship while delivering online classes in the internship school. The online internship experience that was conducted through online facilitated learning opportunities. Student instructors are given a learning environment where they can watch and model excellent teaching since the teaching internship enables them to adapt their teaching practices (Borg, 2003). The results showed around 11.9 per cent of the student teachers showed concern of online learning in the context of the internship: Teaching subjects and 88.1 per cent are satisfied with the online internship programmes. Despite the difficulties they had when teaching online, they managed to discover ways to adapt to the new teaching environment. Student engagement, opportunities to ask questions, enriched learning experiences were the factors which facilitate the online internship component in reference to the online classes taken by the student teachers in the intern schools. Table 4 further depicts the categories and themes with percentages of the responses reported by the participants.

Table 4

Grade, percentages, Codes and Themes emerged from the participants responses on Internship

Grade	Percentage	Codes	Themes
Not Satisfied	11.9%	Limitations in online teaching, real classroom experience missing, online teaching requires lot of efforts (practical subjects- science, physical education, mathematics, environment), inaccessibility due to remote areas, low connectivity, manage the whole class discipline	Low Internet connectivity, Difficulty in Practical subject, Discipline issue
Good	31.5%	New ideas for learning, engagement of students, observations of teachers, scope of questioning, nice experience	New ideas, students engagement, questioning skills
Excellent	56.6%	Enriched and great experience	Enriched learning

Student teachers explained they all were equipped with the technology and used online apps during their teaching. However, students with practical teaching subjects (Mathematics, science and physical education) were not very satisfied. Teacher trainees with Social science and English Pedagogy were much satisfied. One of the interview transcripts that display their experiences:

This internship has given me even more real-world experience than I had before this experience. This Internship has been such a growing experience for me. I learned how we can teach students by using different skills of introduction, how to illustrate with examples, how to use blackboard while teaching and many more.

2. Internship experience in extra-curricular activities/community engagement

Internship is a process where student teachers actively and purposefully interact with others to bring a reality to their teaching which enables them to appreciate the varying ways in which theory informs reality and reality modifies theory. Classroom Community engagement has an important role to play in enriching the teaching, learning and research activities of teacher education (Howard, Peter & Butcher, 2007). Majority of the student teachers reported a positive experience of online learning in the context of internship and extra-curricular activities. Major activities in which the student teachers participated during the online internship were debate and discussion on different topics, Summer Camp Activities, skill development programs and online cultural activities. Table 5 shows the responses of the students during online internship with reference to engagement in community and extracurricular activities.

Table 5: Responses of the student teachers for online internship: extra-curricular activities/ community engagement)

Responses	Percentage
Digital literacy	21.5%
debate and discussion on different topics	17.8%
Summer Camp Activities	18.2%
Skill development programs	10.5%
Online cultural activities	32%

The experiences of the student teachers on school-wide projects, activities and acquiring organising skills in some form of extracurricular activities had stated positively. For instance:

During a pandemic, of course, there is no possibility of going outside and playing in the playground or celebrating the independence day, School Annual Functions, etc. So there were many challenges on how to engage students in some extra-curricular activities but as said every problem has a solution, so we organised online chart making competition, poem reciting, debates, essay writing competition so that students can participate in these co-curricular activities.

3. Challenges for Online Internship of Teacher Education Programme

Although the student teachers in the study were accustomed to using online platforms for instruction, they encountered difficulties during the online internship period. Major challenges emerged from the responses including programmes including internet connectivity, communication and lack of clarity of the practical subjects, specifically science and mathematics and absence of formal evaluation of performances. Unavailability of proper digital tools, no internet connections, or Wi-Fi connections can cause a lot of trouble due to which many students might lose out on learning opportunities (Dhawan, S., 2020). Connectivity issues in the remote areas were also one of the major challenges encountered by the student teachers.

Table 6

Themes, categories, percentage and ranking of challenges experienced by student teachers during internship

Themes	Percentage	Ranking	Codes
Internet connectivity	38.2%	1	Technical problems, connectivity issues, low network, inaudible voice, contact with rural students
Communication problems	29.5%	2	Difficulty to explain, lack of content clarity, lack of response by students, lack of interaction with the teachers
Lack of clarity of topics	13.5%	4	Maths and science subjects, detailed description missing, terminology , computer subjects, absence of formal evaluation of performances
others	18.8%	3	Eyesight, adaptation of new methods, time management, lack of support of school teachers

During the online internship programme, the student teachers also pointed out low attendance of the school students at the time they take classes along with the observations by mentor, school teacher of the subject. However, they supported the students with plenty of online tools in the form of pdfs/ mobile apps which is important for an effective and efficient learning environment. For instance, one of the student teachers stated:

The major problem was the attendance of the students which was very less. As many of the students belong to poor rural families which can't afford a phone or a monthly internet pack. So attendance of students in online classes was very less which was a big problem.

The results showed mixed responses for online teaching. Along with the issues with internet connectivity and a distracted environment at home, student teachers also expressed positive experiences.

Discussion

Previous studies have shown that students experienced online teaching challenges and they were successful in finding ways to adapt to the new educational environment. (Ugalingan, 2021; Abiky, 2021.) but hardly any study addressed both the theory and internship related components of the teacher education programme of online classes. Cho & Clark-Gareca (2020) noted the unprecedented challenges and facilitation of online learning for the education institutions due to COVID-19 as an "alternatives continue the implementation of teaching and learning programs". Technical conditions, lack of computers at homes, lack of clear and continuous interaction with the internship school and attending classes on mobile phones leading to health issues were few issues which hindered the student teachers from gauging their own ability to understand what they were teaching in the school during their internship programme (Adedoyin & Sokyan, 2020; Donitsa-Schmidt & Ramot, 2020; Rospigliosi, 2020). If we look at the Vision of NEP 2020, it clearly states: "Teacher education is vital in creating a pool of schoolteachers that will shape the next generation" [NEP 2020, 15.1] and focused on using experiential learning as a pedagogical approach.

Barnett (2012) asked educators "what does it mean to learn for an unknown future?" (p. 65)., What does it mean to gain work experience in an online, social distancing

world and what should be the focus of that experience and learning?"

These questions focused on the pedagogical problems and technical difficulties faced by higher education online and at the same time how to face instability which may arise due to social and economic changes.

Alammary, Carbone & Sheard (2016); Bayyurt & Kerestecioglu (2018) and Castro (2019) emphasised on using Blended learning in higher education. Mishra & Koehler (2006) highlighted "development of three types of knowledge in pre--service teacher education with the integration of blended learning: content, pedagogical, and technological knowledge". NEP 2020 focused on developing 21st century skills among the students. 'Flexibility and adaptability' due to the sudden change in the social and economic times make learners more self-independent and self-directed. As suggested by Saks & Leijen (2014), for student teachers to be more resourceful and agile, they would be responsible for finding the school for internship and conduct the teaching and learning related activities- which make them self-directed learners. However, the internship will then comport with all the other requirements of the academic program and be facilitated by faculty while the student remains responsible for learning tasks, and that is the self-regulated component. Zhao & Johnson model (2012) includes the following essential elements, "instructional strategies, digital technologies, and delivery methods ' (p. 167) based on planning, strategising, evaluating, and comprehending. Zhao & Johnson (2012) point out that the "learner characteristics of self-efficacy, task-value beliefs, motivation and goal orientation are important to the SRL framework". These characteristics are also important to school organization and are considered by the school management and authority. Roy and Sykes (2017) recommended "there are strong advocates for recruiting interns who fit the vision mission and philosophy of the school in their knowledge, skills, abilities, attitudes, and needs (KSAAN)".

Reflective teaching and flipped classrooms are also the answer to the online teaching in teacher education programme. One significant approach aligned with the NEP 2020 for teacher education programme for the theory and internship part is the "Community of Inquiry" (CoI) framework as given by Briant and Crowther (2020). This model indicates that experiential learning is initiated as a result of:

- cognitive presence (e.g., the ability to construct meaning through ongoing reflection and discourse),
- sustained through evolving social presence (a support to the cognitive process that enables the development of relevant relationships that encourage ongoing engagement),
- results in learning as an outcome of teaching presence (the design of instructional methods that intentionally reinforce critical reflection and inquiry) and
- collegial presence (collaborative, supportive reflective exercises through internship school teachers.

"The Community of Inquiry" model not only establishes a framework for realizing the potential for the use of reflective pedagogies in virtual environments, but also identifies important components to high quality and accessible learning" (Guthrie & Mc Cracken, 2010).

Conclusion

This study provides a theoretical insight into the online learning opportunities and challenges in theory and internship component experienced by student teachers during the COVID-19 pandemic. Given that educational pursuits at these periods necessitate investigating possibilities on uncharted ground, this investigation shows that Online Internet connectivity, non-access of library and other material, lack of clarity of topics, lack of face to face interaction, indiscipline, health issues related to eyesight

and lack of conducive learning environments appear to be relevant challenges for student teachers in theory component part along with lack of clarity of the practical subjects specifically science and mathematics and absence of formal evaluation of performances during internship while implementing lessons in an online environment. However, opportunities for learning online tools and technology, varied pedagogical approaches, enhancement in the communication skills, flexibility of class participation time and self-paced study along with online participation in varied extra-curricular and community activities via debate and discussion on different topics, summer camp activities, skill development programs and online cultural activities appear to help student teachers in their internship during the pandemic.

The study has certain limitations too. Firstly, the opinion of the teacher educators along with the institutional governance and support during online teaching could also be considered. In addition, the universities and institutional practices for evaluating the learning outcomes of the teacher education programmes during online classes could be studied.

Given the unique dynamics of education and learning during these difficult times, when we are putting NEP 2020 into practice, there are several directions that researchers and practitioners can pursue in the teacher education programme. Further, the proposed framework : self-regulated (SRL) (Saks & Leijen, 2014) and community of Inquiry (CoI) (Briant & Crowther, 2020), Garrison et al., 2010; Sanders & Lokey-Vega, 2020) framework can be used as a guiding and directive framework in the light of NEP 2020 for the on-line and offline (blended mode) educational practice in post covid pandemic with due investigation and incorporated for improved pedagogical opportunities in both theory and internship component of the teacher education programme for each of the stages—Foundational, Preparatory, Middle and Secondary.

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