

Teacher Education in India: Engagement of Student Teachers in Online Learning

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Abstract: *Teacher education is the corner stone for improving quality of education in India. The teacher education programs have to take the first step towards realizing this goal and provide highly trained teachers who are capable of taking on the challenges of the present and the future. The most immediate transformation that the education system is undergoing today is the blending in of educational technology for the purpose of teaching and learning. One of the dimensions of educational technology is online learning technology and student teachers* should be prepared to integrate it into their teaching and learning practices (Sang, Valcke, van Braak, & Tondeur, 2010)[1]. There is a vast array of online learning resource that the student teachers can freely access and benefit from. Having at least a familiarity with online learning environments is extremely essential for the student teachers not only during their pre-service training but also for their in-service trainings in the future to be in the mainstream of the requirements of the changing society. There is also tremendous scope for them to use online learning environments for teaching purposes. However, their access and exposure to these resources seems to be very limited. This study analyzes the extent to which the student teachers are aware of the online resources and are able to use it for the teaching and learning purposes. It highlights the present status of the teacher training programs regarding their knowledge and involvement with online learning technology.*

Keywords: *Education Technology, Higher Education, MOOCs, Online Learning, Teacher Education.*

I. Introduction

Teacher education in India has been largely traditional with a slow pace of modernization, and we have not yet been in a position to infuse in it the technological innovations for transacting education (Goel & Goel, 2013)[2]. Despite the understanding that education technology can be a significant tool for effective teacher education in India, this resource has been largely neglected and its use to enhance the educational experience of the teacher-training programs has been mostly negligible.

Education technology of today has the potential to help teacher-training programs to overcome the challenges it has been facing over the years. These challenges have rendered the programs inadequate in providing the schools with quality teachers, thus hampering the education process. Twenty-five per cent teachers are absent from government primary schools and only about half are completing their full teaching hours, bringing to light the lack of dedication on the part of teachers (Kremer, Chaudhury, Rogers, et. al., 2005)[3]. The decreased job involvement of teachers is also due to a lack of job satisfaction due to various reasons (Sinha, 2012)[4]. Apart from this, there are a host of other problems that the teachers face during their careers: poor subject mastery of teachers; well qualified teachers reporting difficulty teaching any subject; teachers reporting that they did not feel competent to teach the subject that they were assigned; and problems with multi-grade teaching (Narwal, 2013)[5]. These problems can be directly linked back to teacher education and training, thus indicating the area that requires our attention.

Overcoming challenges in their own career path is one aspect that needs teachers' attention. Another aspect is acquiring teaching skills required for preparing young people to enter the rapidly changing world, and for this teachers will have to keep themselves up to date and in the mainstream of educational developments (Nachimuthu, 2010)[6]. Educational technology is seen to have the potential to facilitate this change. It is fast becoming an inevitable part of the education system and is changing the pattern of teaching and learning at all levels. The teachers will, therefore, have to prepare themselves for the changed responsibilities and skill sets for future teaching that will involve high levels of Information and Communication Technology (ICT) and the need for more facilitative than didactic teaching roles (Gupta & Amre, 2013)[7].

* Student Teachers: Students training to be teachers and enrolled in one of the teacher training programs (B.Ed. or M.Ed.)

II. Literature Review

Keeping teacher-education in sight for improving the learning achievements of school children, the twin strategy is to (a) prepare teachers for the school system (pre-service training) and (b) improve capacity of existing school teachers (in-service training) (MHRD, 2015)[8].

Studies have been conducted with focus on the in-service teacher training and the role of online learning technology in it. Suggestions are made to integrate the existing curriculum with a specialized course to equip the teachers with skills to operating and maintaining hardware, acquiring and utilizing software of different kinds and sharing information through networking in collaborative and participative methods (Sain & Kaware, 2013)[9]. On the other hand, some small-scale studies have shown that in-service teachers are already using online resources for professional development (Ajvani, 2014)[10]. However, this phenomenon is still to become widespread. Attention has also been drawn to Massive Open Online Courses (MOOCs) for teachers. Teacher Education MOOCs can span both pre- and in-service programs supplemented as necessary and can help teachers meet their professional development needs, both pre-service and in-service (FICCI, 2014)[11]. Professional development of teachers is a lifelong process and MOOCs can prove to be a very practical and cost effective solution to increase teacher expertise and help them face the challenges of the upcoming online education era (Ambadkar, 2014)[12].

Research on the pre-service teacher education programs has also brought to light some new directions that can be further explored. With pilot run of courses like B.Ed. E-education, attempts have been made to orient the teachers in the latest pedagogies, learning theories and relevant ICTs to develop competencies and capabilities in the learners through e-learning (Deshmukh, Chougule, et. al)[13]. Thus, there is a need of technological revolution in teacher education (Nachimuthu, 2010). There is a general consensus that new pedagogy needs to be developed to utilize new dimensions of training as provided by ICT (Agrawal, 2013)[14]. Our teachers need to master the skills like thinking, finding, creating, evaluating, analyzing and applying new content understanding with great flexibility for which technology can prove to be highly effective (Deb, 2013)[15].

It was realized that educational transformation is not possible unless teacher education programs are transformed to prepare the teachers to play their pivotal role in this process of change (Deshmukh, Chougule, et. al). In 2009, the National Council of Teacher Education (NCTE) prepared and circulated the National Curriculum Framework of Teacher Education, which would be consistent with the changed philosophy of school curriculum and had some important dimensions as: (MHRD, 2015)

- Reflective practice to be the central aim of teacher education;
- Opportunities for self-learning, reflection, assimilation and articulation of new ideas;
- Developing capacities for self-directed learning, ability to think, be critical and to work in groups.
- Providing opportunities to observe and engage with, communicate with, and relate to children.

The teacher training programs were re-designed to incorporate this philosophy and the discipline of education technology was introduced to make student teachers aware of its importance and use. It is an enabling discipline designed to make the teaching of any subject more efficient and effective to meet the goals for which the subject is being taught (NCERT, 2006)[16]. But technology still seems to be far from realizing its full potential in the field of education. It has been realized that there is a need to adopt a two-pronged strategy: training and educating teachers through the use of technology and training teachers in the use of technology (Sain & Kaware, 2013).

In light of the background, this research paper will study the practical use of education technology in the form of online learning by students of pre-service teacher-training programs (B.Ed.[†] and M.Ed.[‡]) that are conducted by the colleges affiliated to HNB Garhwal University, India. It will attempt to determine as to what extent the student teachers are applying their theoretical knowledge of the discipline of education technology and making use of the online resources for the purpose of teacher training.

III. Research Design

This study focuses on student teachers' perception about the inclusion of online learning for the purpose of efficient teaching and learning and their own access, awareness and use of online resources for the same.

[†] B.Ed. – Bachelor of Education is a one-year teacher-training program in India for students with a bachelor's degree.

[‡] M.Ed. – Master of Education is a one-year teacher-training program for students with a master's degree.

3.1 Research methodology

The design used for this study is based on quantitative research methodology. The study uses a standard survey research method for data collection that provides quantitative data for analysis of the research questions. There are two aspects that are covered in this research:

- a. To assess students' opinion on the importance of online learning in the teaching and learning process.
- b. The practical use of online learning resources, which will further look into two dimensions of:
 - Access and use of Internet: This aspect will be looking at access to Internet and its use by the students to determine the level of student involvement with Internet technology.
 - Awareness and use of online resources: This aspect will attempt to determine if the student teachers are engaged with any kind of online learning; and what online resources are they aware of and using at present.

3.2 Research Method

3.2.1 Sampling:

The population for this study includes B.Ed. and M.Ed. students of colleges that are affiliated to HNB Garhwal University and offering these courses. HNB Garhwal University was established in 1973 and is among the ten largest universities of India. It was established as a Central University under the provision of the Central University Ordinance, 2009 and has 3 campuses with an increasing number of affiliated colleges and institutions. For the purpose of this study, colleges affiliated to HNB Garhwal University that are providing B.Ed. and M.Ed. courses were contacted for permission to survey the students. Five colleges agreed to let their students contribute to the research. Volunteer sampling was used as the students volunteered to participate in the research after being informed about its nature and intent.

3.2.2 Research Tool and Data Collection:

A questionnaire was designed as the tool for data collection. It was a structured questionnaire, keeping in mind the quantitative research methodology adopted for this study. Various types of questions were used to frame the questionnaire. In general, the questionnaire consisted of closed questions, simple questions, multiple response questions and filter questions. The main purpose of choosing a questionnaire as the data collection tool was to be able to collect data from a larger number of students within the time frame of the project.

Data was collected from B.Ed. and M.Ed. students of the colleges that had agreed to participate. The students were provided with all the information regarding this study and were informed about its purpose. All participating students gave a written consent, being aware that they can withdraw from the study at any point.

IV. Data Analysis

A total of 254 students responded to the questionnaire. These included 74 boys (30%) and 180 girls (70%). The medium of instruction of half of the participants was Hindi (127) and the other half had their medium of instruction as English (127). The sample was a mix from various backgrounds in education in terms of both stream of study (Science, Commerce, Arts and Social Sciences) and level of qualification (Bachelor or Master degree).

4.1 Student's Opinion on Importance of Online Learning

Education Technology as a discipline has become a significant part of the curriculum of teacher education programs in India. The student teachers study the various aspects of technology in education that helps to open their minds to the new possibilities it can provide for improving the quality of teaching and learning. This openness in thought is well reflected in their perception of online learning technology. The student teachers were asked about their opinion on its importance in teaching and learning. The result showed that a large number of student teachers saw online learning technology as extremely important in making teaching and learning effective. As per the data in Table 1, 154 (61%) of students believed that online learning technology is highly effective in teaching and learning whereas another 64 (25%) feel that it can make some improvements in teaching methods and learning outcomes. These results clearly show that majority of students understand the relevance of online learning in education and the inevitable role it is likely to play in the future.

<u>Statement</u>	<u>Responses</u>
Online learning technology can make teaching and learning highly effective	154
There can be some improvement in teaching methods and learning outcomes	64
Online learning technology cannot be used in teaching and learning of all subjects	21
There will not be any significant change	11

4.2 Using Online Learning Technology

Acknowledging the importance of online learning technology within the education system is beneficial for student teachers in that they are open to the idea of involving themselves in it and exploring more opportunities to advance in it. However, this advancement will be hindered unless the student teachers are able to work on its applicability. Online learning and the innumerable online resources that are freely available for the student teachers to engage with can push their learning threshold to a large extent. On further analyzing the extent of use of the online learning technology by student teachers it was seen that there is an absence of its practical application.

4.2.1 Access and Use of Internet:

Student engagement with Internet is assessed from two perspectives for the purpose of this study: access to Internet and hours spent online. The data shows that 211 (83%) of the student teachers did not have any access to Internet in their college and the remaining 43 (17%) had very limited access as there was no free-to-use open Internet service that was provided by their institutions on campus (Table 2). On the other hand, 246 (97%) of the student teachers had some access to Internet outside of their institution, which was mainly through Internet at home, mobile Internet, Internet café or a combination of these (Table 3).

Access to Internet facility is the one of the most crucial factor that needs attention. It is the lack of access that is leading to the digital divide between the haves and the have-nots. The colleges surveyed for data collection did not provide on campus, free access of Internet to their students. There was Internet facility in the colleges for limited use but not open to students at all times. Some students did use this Internet facility but only for limited time and for some specific purpose with permission from the teaching staff. Conversely, almost all student teachers had some form of access to Internet outside their college campus. This reflects on the efforts that the student teachers are making to have access to Internet in any way possible, when it is not provided for by their colleges.

Table 2: Students' Access to Internet		
	<u>Yes</u>	<u>No</u>
Access in College	43	211
Access Outside College	246	8

Table 3: Student Distribution as per Source of Internet Access	
<u>Place of Access</u>	<u>Number of Students</u>
At home	57
Mobile	44
Café	32
At home and Mobile	50
Mobile and Café	28
At home and Café	6

The overall time spent online by the student teachers was seen to be very low (Table 4). A majority of students spent less than 6 hours per week online. About 74 (30%) student teachers spent less than an hour per week, 72 (29%) spent 1 to 3 hours, and 59 (23%) spent 4 to 6 hours per week using the Internet. Only about 24 (10%) student teachers spent 7 to 10 hours and 21 (8%) spent more than 10 hours per week on Internet. The use of Internet for less than an hour per day (or less than 6 hours per week) by a majority of students (82%) may not allow them to have any significant involvement with the online resource. Some trends in the data also suggest the same. There is a general increase in percentage of student teachers involved in online learning as the number of usage-hours increase. Only 12.2% of the students using internet for less than one hour per week are using online resources, whereas, 54.2% of the students using internet for 7 to 10 hours per week are exploring online learning environments. This emphasizes the need for providing student teachers with better access to Internet for them to benefit from online learning technology.

<u>Hours per Week</u>	<u>Students using Internet</u>	<u>% of Students using Internet that are Involved in Online Learning</u>
Less than 1 hour	74	12.2
1 to 3 hours	72	44.4
4 to 6 hours	59	40.7
7 to 10 hours	24	54.2
More than 10 hours	21	38.1

Another aspect to take note of is that despite a large percentage of student teachers having access to Internet outside their colleges, the extent of their use of this facility is significantly low. The data shows that the number of hours spent online may be dependent on the source of access they use (i.e., at home, mobile, internet café, or a combination of these). The frequency distribution table (Table 5) below shows some trends in this pattern of Internet usage. 45% of student teachers spending more than 10 hours per week online have access to Internet at home. A similar trend is seen for those spending 7 to 9 hours per week online with 39.1% of them having Internet at home which is again the largest share. On the contrary, maximum numbers of student teachers using Internet for less than an hour, access it in an Internet café (31%). For mid-range users of 4 to 6 hours, 29.4% of them access Internet at home as well as on their mobile devices.

	<u>≤1</u>	<u>1 to 3</u>	<u>4 to 6</u>	<u>7 to 9</u>	<u>≥10</u>
Home	19.0	29.7	17.6	39.1	45.0
Mobile	22.4	18.8	19.6	26.1	15.0
Café	31.0	10.9	9.8	4.3	0.0
Home & Mobile	13.8	26.6	29.4	17.4	30.0
Home & Café	12.1	10.9	17.6	13.0	10.0
Mobile & Café	1.7	3.1	5.9	0.0	0.0

The variation in use of Internet at the different points of access can be pinned on the ease of access. The percentage of student teachers using home Internet increases with the increase in hours of usage from 19% for less than 1 hour of usage to 45% for more than 10 hours of usage. A similar increasing trend is seen among those using home and mobile Internet. A reverse trend is seen for student teachers accessing Internet facilities at an Internet café. The percentage drops from 31% for less than 1 hour of use to 0% for more than 10 hours of use.

An individual students level of motivation for using online resources is the foremost factor that determines the number of hours he or she spends online. Apart from that, ease of access is another factor to be considered. Each source of access may have limitations such as Internet speed, costs, limited data usage, etc. But home and mobile networks provide easy access to Internet and thus student teachers using these sources spend more time online. Thus, having easy and free access to Internet facilities within their educational setup can encourage the students to involve themselves with online learning to a greater extent. It will also lay down the foundation for teacher trainers to introduce more online-based assignments and activities for the student teachers.

4.2.2 Awareness and Use of Online Resources:

A sizable number of the student teachers had some access to Internet outside of their colleges. However, due to the low number of Internet hours per week, there are a significantly high number of them who did not participate in any form of online learning. Table 6 shows that 168 (66%) student teachers had not participated in any online learning activity at the time of the survey. Secondly, 86 (34%) student teachers that participated in online learning had more than one choices of online content that they preferred to get involved with. Maximum student teachers referred to online encyclopedias (52) and online newspapers (54). The third

most referred to online resources are online journals (30) and lectures/talks/conferences (28). Only 19 student teachers had experience of participating in online courses.

MOOCs are a fast growing concept for open online learning. Its importance has been recognized in India as well, which is evident with the announcement of a MOOC platform for Indian universities called SWAYAM (Study Webs of Active-learning for Young Aspiring Minds). When asked about MOOCs in the survey, 236 (93%) of the student teachers were not aware of the concept of MOOCs (Table 7). Of the remaining 18 (7%) who were familiar with this term, only 3 student teachers had participated in at least one MOOC.

Data shows that the student teachers have very low rate of engaging with online learning. They are unfamiliar with the various online resources that they can use without any prerequisites. Though they give high importance to online learning, yet their own involvement with it is negligible. This can be seen as a major drawback to the idea of having teachers trained in using learning technologies for teaching and learning purposes.

Table 6: Students' involvement with online learning	
<u>Online Learning Resource</u>	<u>Number of Students</u>
Not participating in Online Learning:	168
Participating in Online Learning:	86
Online Courses	19
Online Journals	30
Online Encyclopedias	52
Online Newspapers	54
Audio/Video Lectures/Talks/Conferences	28
Discussions Groups or Forums/Blogs	14
Others	2

Table 7: Awareness about MOOCs		
	<u>Yes</u>	<u>No</u>
Awareness about MOOCs	18	236

V. Conclusion

In the present teacher education program, the component of using online learning technology is absent. The only aspect that the students are introduced to is the theoretical aspect of technology in education. Though 86% of students believed that online learning technology is highly effective in teaching and learning or can make some improvements in teaching methods and learning outcomes, only 34% of them actually practically involve themselves with it. This shows the wide gap between theory and practice of technology in teacher training programs. Other factors that were brought to light by this study were: less number of hours spent online by the student teachers and the low awareness level about the online resources and their possible use.

For the teacher training programs to move in the desired direction, efforts need to be made by the educational institutions to provide all time open Internet access to students on campus. This would make integration of online learning technology into the teaching and training process of the student teachers much easier and smoother. But most of the institutions have problems setting up the infrastructure due to lack of funds and expertise. This, however, should not be seen as a setback. Efforts to provide Internet to students on campus should be a priority, but until then there is a need to explore how the student teaches can be guided to efficiently use their limited access to Internet outside the colleges so that they are spending their time efficiently. Small assignments and projects to be done with the help of online resources that is feasible for the limited Internet access that they have can encourage the student teachers to further explore this resource without adding excessive burden.

The student teachers need to be encouraged, guided and trained in a manner so that online learning becomes a part of their teaching learning process. This will also help students to overcome any reluctance to using online learning technology. Teaching through online learning will not only make the student teacher's own learning effective, it will also help them to utilize it for making the learning of their future students more effective. They will be able to self-learn, be up-to-date and understand technology in education in a more richer and holistic manner.

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