UED JOURNAL OF SOCIAL SCIENCES, HUMANITIES & EDUCATION

INDIAN TEACHER TRAINING SYSTEM: TRAINING OF SCHOOL TEACHERS IN ICT SKILLS TOWARDS BUILDING AN ICT ENABLED TEACHING

Krishna Sankar Kusuma

Abstract: In India school education over the years has expanded rapidly both in rural and urban areas. The quest for learning and better living is one of the motivations that every strata of society wanted to send their children to school. The enormous growth of private schools is one indication of the increased requirement education at school level.

The teaching methods, philosophy, school environments, and approaches to the management of schools have improved positively over the years. Teacher training is one of the important bases that the nation's education system is built. The paper will focus on importance of teachers training in ICT skills towards integrated teaching for a better learning in schools run by the government.

The government of India policy on ICT for education is more enhanced now and encouraging. Government has also incorporated ICT training for in-service teachers through its various projects and policies. The main focus is the capacity building of school teachers in computer aided learning process. One of the important milestones that needed to be mentioned here is "Operation Blackboard" which started in 1987. The aim is to provide basic facilities to the all the primary schools across India. Now the novel initiative "Operation Digital board" is to promote ICT infrastructure and teaching.

India is one the countries in the world which has been focused on ICT skills training at Pre-service teacher training and in-service teacher training. This paper emphasizes both the category of teachers training where it is aimed at enhancing the ICT skills in building a smart classroom or school for quality education.

Methodology for the study includes a nationwide survey, conducted for both the category of teachers. Two teacher trainees and two in-service teachers were selected from each state of India. The study also evaluated various course curriculums on ICT which is followed by the teacher training colleges. Interviews with the instructors and focus group discussions with pre-service teachers are conducted for the study.

The major findings of the study explain how the ICT is made a compulsory subject at training colleges with the improved ICT curriculum. The study reveals the strategies of Indian government that surpasses the challenges in re-training of in-service teachers on ICT skills and building the school infrastructure.

Key words: India; ICT skills; in-service teachers; teacher training; ICT policy.

School education in India over the years had expanded rapidly both in rural and urban areas. The quest for learning and better living is one of the motivations among every section of society to send their children to school. The enormous growth of private schools is one indication in this direction. The demand of engineers has come down compared to the demand for good teachers.

The teaching methods, philosophy, school environment, approaches to the management of schools have changed positively. Teacher training is one of the foundations that the countries' education system is built. The paper dealt with the importance of teachers training

---

* **Corresponding author**
Krishna Sankar Kusuma
AJK Mass Communication Research Centre, India
Email: imkusuma@hotmail.com

in Information and Communication (ICT) skills towards building a better learning and ICT enabled teaching.

Teaching is one of the favourite jobs in India. During the course of teacher training programme which is called Bachelor of Education (B.Ed), one of the important papers taught is ICT skills training. This paper is offered as one of the core papers. Government of India has been instrumental in developing various digital initiatives for the training school teachers in ICT skills, establishing smart classrooms, internet based teaching and usage of web based teaching material etc.

ICT based teaching and learning is given more importance with the advent of multimedia, computer and internet technologies, which contributes great potential for enhancing both teaching and learning experience. Further training introduces the teacher to ICT enabled administrative and academic support systems.

One of the important milestones that needed to be mentioned here is "Operation Blackboard" which started in 1987 by the central government of India. The aim is to provide basic facilities to the all the primary schools across India.

In one of the workshops on education the Minister, Human Resource Development (HRD), Prakash Javadekar said that the importance of imparting education with the help of technology needs common platform with the private and public partnership. He further reiterated that currently India is aiming at "Operation Digital board" (TOI, 2017). The workshop also released a compendium on 'Innovations and Best Practices in School Education', where it has discussed the current practices of ICT and other best practices in school education in the country.

India is one of the countries in the world which has been imparting ICT skills training at pre-service teacher training and in-service teacher training. This paper focuses on both the category of teachers training for quality education through ICT.

Methodology:

The current study is limited to the government run schools only. The study employed a nationwide survey particularly conducted for both the category of teachers. There are 29 states in India. In each state, two teacher trainees and two in-service teachers were chosen

through a purposive and snowball sampling. The study also conducted the content evaluation of various course curriculums on ICT which is being taught in the teacher training colleges. Interviews with the instructors and focus group discussions with pre-service teachers were conducted for the study.

Pre-service teacher training:

A decade back availability of computer related infrastructure was bear minimal at training centres. Nowadays, the advent of cheaper digital technologies and internet gives access to many trainees and teachers to learn basic use of computers and smartphones on their own. This helps in training and introducing teachers to new communication and technological platforms. This phenomenon indicates the technological leapfrogging to a more informed information network of educators, learners and administrators. Initially training is given on Microsoft office tools. Later on teacher trainees are introduced to teaching in smart class and learning management through computer based systems.

In Indian scenario there are national educational boards and state government boards for school education. The state government boards are authorised to design their syllabus as per their cultural and regional requirements. Each state has uniqueness in their culture and language. The national educational board's framework is being followed mostly in metro cities; however there is not much influence on the curriculums developed by the different state government educational boards. The national boards include The National Council of Educational Research and Training (NCERT), Central Board of Secondary Education (CBSE), Council for the Indian School Certificate (ICSE), National Institute of Open Schooling (NIOS) etc.

The subject paper of ICT in teacher training degree is offered with different nomenclatures. NCERT calls it 'Understanding ICT and its Application'; the others name it as 'Computer Education' or ICT skills or Educational Technologies etc. Along with other subjects like psychology, teaching aids, teaching management etc. teachers are trained in computers, internet, smart board usage and other ICT skills.

Initially though the subject which is part of the teacher training programme, there was no proper infrastructure provided for it. Trainees were trained in

large groups to learn only 'paintbrush' software. This is one of the basic pieces of software in the Microsoft office. Computer literacy was the main thrust area than the practical use of it. Currently the training institutes in teacher training aim to provide better facilities and computer labs to impart training on the use of software for administration by using digital resources, smart class teaching etc.

The external factors in using technology have also influenced these changes. The use of smartphones and affordable internet has changed the public communication phenomenally in India. Using android based smartphones is very common. The teachers now require need based or specific training as they have already known the nuances of the communication technologies. To build upon their knowledge trainees are introduced to use of smart board, teleconferencing system, using social networking and use of digital technologies for managing the student records etc.

In-service teacher training

In-service teacher training has been conducted on various issues related to pedagogy, ICT skills and school administration periodically by the education departments of respective state governments. Central government also framed common guidelines for the implementation of ICT with the thrust given to building smart classrooms and creating smart model schools. Provisions were also made for re-training of the teachers. Governments 'Digital India' initiative has boosted use of technology in education.

Department of education has taken the initiatives of using facebook, whatsapp, websites for disseminating information, training material and learning resources. The same is implemented by district and block or Mandal (one of the administrative divisions of a district) level administration.

Rangareddy district of Telangana state conducted training for teachers to introduce English medium in schools. The objective is to train the teachers in spoken English and communicative English. The participants were divided into two groups on whatsApp messenger. Each group consists of 256 teachers. Every day teaching modules were posted to them and the result was encouraging. Apart from learning themselves, teachers shared the learning material with other teachers in the state. Later on they successfully improved the skills of teaching in English (Ramesh, 2017).

Currently it is easier to communicate with teachers. The school teachers unions are also actively share information on whatsapp. The teachers also have subject wise, school wise, zone wise groups to discuss and share thoughts on teaching and learning.

Teacher trainings are generally conducted twice a year during the vacation time and sometimes at the weekend. Additional training classes were conducted on a variety of topics time to time. Teachers will also be rewarded with allowances. They were expected to mention their learning in their yearly progress reports. These trainings or workshops are named differently in different states of India. For example, at the Mandal or block level it is called 'School complex' in Andhra Pradesh. Sometimes training classes were conducted at district level at District Institute of Education and Training (DIET). Training lectures were also done through teleconferencing system. Initially only one teacher in a Mandal used to be trained but infrastructure and the need has increased so that every teacher is required to get the training time to time.

ICT curriculum for teacher training:

The central schools generally adopt the model curriculum designed by National Council for Teacher Education (NCTE) for B.Ed, Master of Education (M.Ed.) and (Diploma in Elementary Education (D.EL.Ed.) Rehabilitation Council of India (RCI) is the body which provides the prescribed syllabus for B.Ed special education.

The NCERT curriculum is followed by CBSE schools. NCERT curriculum on ICT is both theoretical and practical. The trainee teachers should acquire the philosophy and theory of the ICT tools for teaching. It will help them innovate further and not depend totally on technology.

B.Ed. special education includes two papers. The optional paper titled 'Technology and disability' and compulsory paper is titled 'Application of ICT in class room'. The compulsory paper is mostly theoretical in nature. The optional paper is related to the introduction of the software for visually disabled students. The curriculum was improvised from the framework provided by the RCI.

The B.Ed (not specialised) was one year course but the NCTE redesigned to a two-year course from 2014 onwards. This gave an opportunity to involve students in a variety of internships and incorporate new papers. In the B.Ed course, the paper entitled 'Critical understanding of ICT' was offered in the first year of two years B.Ed. Earlier this paper used to be an optional paper. Currently ICT is also kept as one of the specialisations that students can chose from other specialisations. Under the specialization there were subject specific software pieces that were taught. The main thrust is on how to integrate the ICT in teaching and learning. Trainees develop lesson plans and learn the use of smart boards and other ICT tools. But most of the schools where smart boards are provided are rarely used as the training was not given to all the teachers. As the technology is rapidly changing, it is also important to orient them to the use of technologies to catch up with the changes. This will help the students to adapt to the latest technologies fast with the background of having experience in learning basic training on computer tools.

One of the interviews with the teachers who were involved in training lamented on the lack of specialised instructors for this subject. These labs don't get maintenance of computers once they malfunction. M.S. office, power point presentations were some of the inputs in the paper that were taught. In some colleges with lab facilities B.Ed students were also taught Statistical Package for Social Sciences (SPSS), excel spread sheet etc. on a workshop mode. Orientation is given also now to the use of social networking tools such as how to form email or messaging groups and networking.

In the study some teachers feel smart boards and PowerPoint presentations will not improve the quality of teaching whereas the use of black boards gives them opportunity to free flow of thought. Thus the traditional 'chalk and talk' mode cannot be underestimated. On the other side, the faculty who teach at B.Ed colleges feel that they can still improve the innovation with the structured digital presentations. In fact it can create interest and enthusiasm among students to learn the subject.

Student's internship program is important to enhance their training on ICT tools and concepts. Internship is also part of the curriculum where there are specialisations offered. The students at Jamia Millia Islamia university do their internship in Central Institute of Educational Technology (CITE) at NCERT in Delhi for their internship. They will learn the e-learning and e-content preparation along with the ICT skills which is an additional benefit.

Overview of the Internet based digital platforms for teachers

Use of computer technology gained its momentum in the field of teacher training course, over a decade of years. Presently the internet is sustaining or bridging the gap in learning and training systems with the increased use of e-gadgets. Innovation and technology has been made imperative for teachers to enhance their ICT skills training.

Department of education has taken the initiatives of using Facebook, whatsapp, websites for disseminating information, training material and learning resources. The same is implemented by district and block or Mandal level administration.

Websites and mobile applications have become a common platform for teachers and government. There are a number of websites and mobile applications developed by both central government and state government authorities that would help the teacher training and in-service teachers with day to day working. These resources are also aimed to help the student with learning material. This comprises of free books, videos, e-content and additional reading material. To mention a few, e-basta (electronic repository of text books and other learning resources) for free and easy access across the schools and e-pathshala (electronic schools) provide audio-visual lectures and study material for the school students. The notices, letters, circulars etc from the government are placed in the mobile applications and the websites for the teachers. Teachers also fill and submit their transfer applications, attendance, yearly reports etc. online. This has made every teacher to learn gradually these new customs apart from teaching purpose. It also gives direct access to the government.

An experienced teacher who has been using the good old traditional methods of teaching needs a different workshop to adopt the new methods in order to integrate teaching with technology. The training or workshop alone may not motivate them to innovate in

pedagogy. It is important to fill the gaps in terms of knowledge and understand new generations of students.

E-learning is one the new learning spaces can be used for teacher training. In the ICT curriculum some parts of the training were also given with the help of e-learning modules developed by various government institutes. In India, government found that there is a lack of teachers in many primary schools. MHRD collaborated with NIOS is offering a 6 month bridge course for the teachers who are not trained (NIOS, 2017). This course is offered through SWAYAM which is the online platform for the Indian version of Massive Open Online Courses (MOOC). Across Indian lacks of teachers were now registered in MOOC's to complete the bridge course to acquire the training. Once they join back to their schools, re-training of them will enhance their skills further.

Discussion and Conclusions:

The government policy on ICT for education is more enhanced now and encouraging. MHRD has its policy incorporated ICT training for in-service teachers through its various projects and policies. The main objective is to facilitate capacity building of school teachers with computer aided learning process. According to Natinonal Policy on ICT in School Education (2012) *"The Scheme is a major catalyst to bridge the digital divide amongst students of various socio economic and other geographical barriers. The Scheme provides support to States/UTs to establish computer labs on sustainable basis"*. This indicates a centrally designed training strategy is emerging across India. Digital India projects and the ICT policy have clear impact in terms of establishing technology infrastructure like smart schools, smart classrooms and training.

The situation in India has improved compared to 2013 as it was found in the study of use of ICT in education among Asia-pacific countries says *"Most of the countries in the region have learned from the mistakes of the past where teachers were first trained just on basic computer literacy, after which the knowledge and skills learned were never or rarely applied in the schools" (UNESCO, 2013)*. The situation in India has transformed to a great extent with the digital India initiative. Basic computer literacy is not a

hindrance now. It is now imperative for teachers to adapt to the use of ICT in schools.

Technology alone cannot empower the learning strategy but enhances the learning ability. While using the ICT, a teacher is the one who makes it happen. These technologies become more interactive and user friendly over the years with the help of smart boards and internet. This mode of learning is more fun and entertaining. Interactivity and learner participation are the most important in this process. Technology should not overpower the teacher. It should not limit the creativity of the student through the process. It should in fact help in developing a meaningful communication towards a creative and innovative learning process.

Some teachers in Andhra Pradesh and Telangana felt that the training should not be limited to the software, but also on hardware inputs. This will help to troubleshoot the minor issues for the usage of ICT tools and increase the sustenance of ICT usage.

It is important to observe that teacher training by the private educational institutions has grown rapidly. They lack basic infrastructure and facilities for teacher training. The government institutions are also lacking basic ICT training labs and instructors. The irony is that government attention is being given to the modernisation of schools rather than facilities at teacher training colleges. Due to this trainees were lagging in the use of technology in the initial stage of teaching in schools.

Even during the in-service training it is important to conduct periodical workshops, training, refresher courses which will help and fill the gaps to acquire latest technological innovations in teaching. Teachers should not be restricted to their home state for training; they should be allowed to attend the training in higher education institutions across India.

Teachers' role in helping the government authorities with data collection such as census collection, surveys, popularising government schemes, election duties etc. increases their work load. The amount of paperwork in terms of documentation and reporting to the higher authorities is being made crucial for teachers. Thus the teachers should be given time for creativity and innovation in teaching than the administrative work.

Currently government is making efforts to develop schools and education in rural, tribal and remote areas of India, where schools have only single teacher. Teachers from the remote areas like Tripura state, the north-eastern part of India discussed the poor electricity, lack of basic furniture and difficulties in attending the training. To overcome this hurdle every state government is striving to recruit the trained teachers. NIOS bridge course as mentioned earlier is an indication towards these efforts.

A small incentive or appreciation will always encourage teachers to participate more actively. There are additional rewards given to teachers who have been using ICT in teaching during their promotions and periodical transfers. Government in its ICT policy instituted a national award for teachers using ICT in schools.

It is important to maintain the balance between quantitative expansions of educational technologies versus Quality education with integrated technological approach. Giving access to technology should also ensure the participation in imparting the technology enabled teaching and learning. ICT skill training should have the balance of theory and practice as it should not end as a technological determinist approach.

References

[1] (2003). *Teacher Training on ICT Use in Education in Asia and the Pacific: Overview from Selected Countries.* United Nations Educational, Scientific and Cultural Organization. Bangkok: UNESCO Asia and Pacific Regional Bureau for Education.

[2] (2012). *Natinonla Policy on Information and Communication Technology (ICT) in School Education.* Ministry of Human Resource Developmement, Department of School Education and Literacy. New Delhi: Government of India.

[3] D.V.Ramana. (2017). *Digital Classroms: Innovations in Teaching-Learning Methods.* National University of Educational Planning and Administration, Department of Educational Administration. New Delhi: NUEPA.

[4] Gohain, M. P. (2017, November 06). "Operation Digital Board' in all schools in the coming years: Prakash Javadekar. *Times of India.* New Delhi: Bennett, Coleman & Co. Ltd.

[5] Ramesh, G. (2017). *Improving Schools and Technology Mediated Learning Skills of Children.* National University of Educational Planning and Administration, Department of Educational Administration. New Delhi: NUPA.

[6] Schooling, N. I. (2017). *Diploma in Elementary Education (D.EL.Ed) Training for the untrained in-service Elementary Teachers.* New Delhi, Delhi, India.

HỆ THỐNG ĐÀO TẠO GIÁO VIÊN ẤN ĐỘ:
ĐÀO TẠO GIÁO VIÊN PHỔ THÔNG CÁC KỸ NĂNG VỀ CÔNG NGHỆ THÔNG TIN TRUYỀN THÔNG ICT THEO HƯỚNG XÂY DỰNG NĂNG LỰC GIẢNG DẠY SỬ DỤNG ICT

Tóm tắt: Ở Ấn Độ giáo dục phổ thông trong những năm qua đã được mở rộng nhanh chóng ở cả khu vực nông thôn và thành thị. Nhu cầu học tập và sống tốt hơn là một trong những động lực mà mọi tầng lớp xã hội muốn gửi con đến trường. Sự phát triển nhanh chóng của các trường tư thục là một dấu hiệu của sự gia tăng yêu cầu giáo dục ở cấp bậc phổ thông.

Các phương pháp giảng dạy, triết lý dạy học, môi trường học đường, các phương thức quản lý trường học đã được cải thiện tích cực qua nhiều năm. Đào tạo giáo viên là một trong những nền tảng quan trọng mà hệ thống giáo dục của một quốc gia được xây dựng. Bài báo sẽ tập trung vào tầm quan trọng của việc đào tạo giáo viên về kỹ năng ICT theo hướng dạy học tích hợp để học tập tốt hơn trong các trường học do chính phủ điều hành.

Chính sách của Chính phủ Ấn Độ đối với công nghệ thông tin truyền thông cho giáo dục ngày càng được nâng cao và mang tính khuyến khích hơn. Chính phủ cũng đã kết hợp đào tạo ICT cho giáo viên qua các dự án và chính sách khác nhau. Trọng tâm chính là xây dựng năng lực của giáo viên phổ thông trong quá trình giảng dạy có hỗ trợ máy tính. Một trong những cột mốc quan trọng cần được đề cập ở đây là "Operation Blackboard" được bắt đầu vào năm 1987. Mục đích là cung cấp cơ sở vật chất cơ bản cho tất cả các trường tiểu học trên khắp Ấn Độ. Bây giờ sáng kiến mới "Operation Digital board" là nhằm thúc đẩy cơ sở hạ tầng và giảng dạy ICT.

Ấn Độ là một trong những quốc gia trên thế giới tập trung vào đào tạo kỹ năng ICT trong đào tạo và bồi dưỡng giáo viên. Bài viết này nhấn mạnh đến cả hai loại hình đào tạo và bồi dưỡng giáo viên hướng đến nâng cao kỹ năng ICT trong việc xây dựng một lớp học hoặc trường học thông minh để đạt được giáo dục có chất lượng.

Phương pháp nghiên cứu bao gồm một cuộc khảo sát toàn quốc, được thực hiện đối với cả hai loại giáo viên. Hai giáo viên thực tập và hai giáo viên phổ thông đã được lựa chọn từ mỗi bang của Ấn Độ. Nghiên cứu cũng đánh giá các chương trình giảng dạy khác nhau về ICT mà các trường sư phạm áp dụng. Các cuộc phỏng vấn với giảng viên và các cuộc thảo luận nhóm tập trung với các sinh viên sư phạm đã được tiến hành cho nghiên cứu này.

Những kết quả chính của nghiên cứu này giải thích cho việc làm thế nào ICT trở thành một môn bắt buộc tại các trường sư phạm với chương trình ICT được cải tiến. Nghiên cứu cho thấy các chiến lược của chính phủ Ấn Độ đối phó với những thách thức trong việc bồi dưỡng giáo viên về kỹ năng ICT và xây dựng cơ sở hạ tầng trường học.

Từ khóa: Ấn Độ; kỹ năng ICT; giáo viên; đào tạo giáo viên; chính sách ICT.