

## Need, Role and Importance of ICT in Teacher Education: A 21<sup>st</sup> Century Review

**\*Mod Istyak Ali**

Research Scholar, Department of Educational Studies, Faculty of Education, Jamia Millia Islamia, New Delhi, India. E-mail: mrisali0022@gmail.com

**\*\* Dr. Sarita Kumari**

Assistant Professor, Department of Educational Studies, Faculty of Education, Jamia Millia Islamia, New Delhi, India. E-mail: dr.sarita10@gmail.com

### ABSTRACT

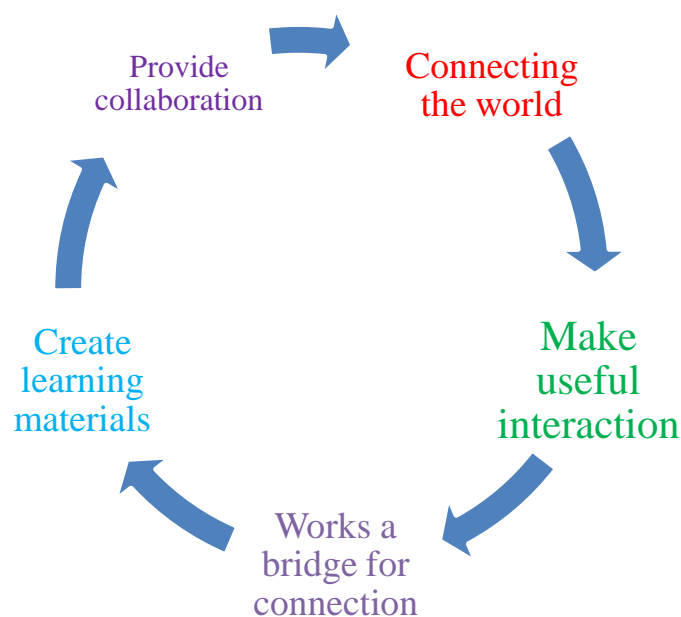
ICT is the outcome of technological development in the present world scenario. It is the combination of application-based technology and theoretical approach of the educational contents. The modern world is growing day by day; technological development became an emerging challenge for society from the mid of the 20<sup>th</sup> century. It is widely used for the teaching practices and promotion of education. Teachers used ICT to make their teaching simple, easy and access able for the students. It facilitates education because it provides more opportunities and platforms to the teachers in Pre-service as well as In-service teaching programme. In this paper, the researchers want that how ICT is useful for teacher education and what is the need of it to promote better teacher education in the 21<sup>st</sup> century. Along also highlighted the importance of ICT in the modern education system of teacher trainees. This research considered various studies as a secondary source for the conduction of this study and a descriptive approach used to determine the sources.

**KEYWORDS:** ICT, Role, Teacher Education, Need, Importance, Pre-service, In-service.

### INTRODUCTION

A traditional classroom is replaced by the new innovative classroom because the invention of technology promotes active involvement of technological invention in the educational context. ICT provide adequate condition to teachers as well as students for the active participation in classroom teaching-learning. Teachers are resource person in teaching-learning process, they provide content material and knowledge to the learners by the process of teaching. The intervention of ICT facilitates teacher's participation in teaching process in a suitable and proper format. A modern education system based on a child-based attitude, So the teachers should have trained with different ICT outcomes by which they make their teaching more flexible and easier for learners. ICT enabled them for better communication with learners and also give them a better opportunity to present and deliver their content material in a more effective way. It also works as an effective tool for teachers to acquiring knowledge and informations in a relevant way. It removes various hurdles like time, places for teachers so they became more active in teaching-learning process (Kaushlendra Pathak & Nawal, 2018).

The education of the teachers is very important for the development of any educational system. The education of teachers opens a new window for the students to learn their content very easily and adequate manner. The modern world influenced by technological inventions and education system also affected with ICT outcomes which makes teacher's education more advanced, adequate, sufficient and interested for the development of teaching-learning process. Now a days various initiatives, policies and suggestions were proposed by commissions and committees that focused on importance of ICT in teacher education. Teacher education is a dynamic, comprehensive and responsive system of society so it prepares them according to the need and significance of the target based on educational mission and vision (Tezci, 2011).



**Source:** Kaushlendra Pathak, & Nawal, M. K. (2018)

The modern age is the period of 21<sup>st</sup> century which is focused on globalization of the education system because when an education system globally approved than it becomes more adequate to the development of society. Globalization of education provides comprehensive and cosmopolitan pictures of educational activities and phenomena related to teacher education. In this perspective, quality-based education is basic demand of everyone and everywhere, which is possible only with a quality teacher (Zhou et al., 2010). Therefore, always keep in mind that quality of education improves with the quality of teacher education because a teacher is that element who have taken the responsibility to ensure the quality of education and ICT gives them a suitable environment to produce their ability and skills to make better education in any perspectives. Information and Communication Technology change the process of transmission of knowledge. It also makes simpler and more flexible the sharing, interchanging the knowledge as information, mental skills, attitude and feelings through the use of media and mass media by this teacher became more interactive in their teaching-learning process (Riegel & Tong, 2017).

## **OBJECTIVES OF THE STUDY**

- To identify the Need, role, and importance of ICT in Teacher Education

## **METHODOLOGY**

In this study secondary sources like various studies, journals, articles, books, internet sources, expert opinion considered. Descriptive and Analytical approaches used to determine these sources for this study.

## **NEED OF ICT IN TEACHER EDUCATION**

Education technology is an umbrella term which considers various technological invention for the development of education. ICT is more advanced version of technological output because it is more interactive rather than other technology. It is very adequate for teacher education in both scenarios like in-service as well as pre-service. It is an agent that activates interest in teachers to become familiar with their professional life. Teacher education has various hurdle cum barriers that emerge problems regarding training and skills. ICT is that initiative in teacher education that removes those barriers and make them active to involve in their training and skill development programme. It also removes social and economic barriers in which teacher's trainee enhance their skills and promote better teaching profession. With the use of ICT in teacher education, they find speedy and instant availability of solutions related to their problems. Pre-service teacher education is that which emphasized in any teacher training institutions. ICT is very helpful in pre-service teacher education because the application of ICT mainly based on teaching-learning process (Aviv & Tesler, 2017).

In pre-service teacher education, teachers learn techniques and skills to make their teaching more perfect. The innovative tools of ICT very powerful that may helpful to teachers in gaining and transforming knowledge as well as well information related to their training programme. Pre-service teacher has more adequate knowledge about theoretical perspectives so the use of ICT enabled tools to make them more practical to their teaching profession. It is also essential for their professional development programme because it gives them a better opportunity to actively engage in those programmes. Information is a very useful aspect for teacher education programme and the collection of informations became possible with the use of ICT because it gives a capsule of various information in a one click. It is a scientific, technological invention that gives power to in-service teachers to utilize these informations in educational perspectives. In-service teachers use it very well to creation, storage, selection, transformation, and distribution of informations. Teaching is challenging profession, it has own limitation related time, place and cost but use of ICT in teacher education programme also remove these barriers to facilitate very well and suitable conditions. ICT works as a medium for in-service teachers by which they can teach their concept to students with interest (Usun, 2009).

The modern world is changing into a capsule where much information existed. With the help of ICT, teachers got these informations and transmit those to others with in same time. The use of ICT also evolves motivation and interest in teachers for their teaching profession because it is more interactive and creative rather than traditional method of teaching. In

present education system, various new trends namely teacher education as a multidisciplinary, inter-disciplinary which became possible with the influence of Information and Communication Technology (Peeraer & Petegem, 2012).

In-service teachers attended various training programme, refresher courses, skill enhancement programme, orientation programme by which they improved and modify their teaching practices which are only applicable to the emergence and involvement of ICT in the field of education. It also works as a gateway to update information related to their teaching profession. Various studies highlighted that use of ICT in teacher education removes hurdles related to content materials, infrastructural issues, resources and gives flexibility to in-service teacher to produce adequate teaching as well as learning in their institutions. In-service teachers faced many difficulties regarding time period for their teaching profession, the use of Information and Communication Technology also reduces time bonding. ICT based tools gave the teachers hand on practices and revision to make their teaching suitable and appropriate by which educational goals could be achieved. It also enables in-service teachers about the imaginary understanding of the concepts by which they could access information according to their needs and relevance. It develops the thinking and criticism in the teachers (Pre-service & In-service ) about their profession because it is the integration of scientific approach and theoretical perspectives (Gill & Dalgarno, 2008).

## **ROLE OF ICT IN TEACHER EDUCATION**

A teacher is an essential part of formal education system of any institution because he works as a facilitator and coordinator for teaching-learning process for classroom. The education of teachers also has importance because when any teachers not trained then they cannot facilitate a better learning environment in their classroom as well as institutions. Information and Communication Technology is the initiative of modern education system which plays a significant role in pre-service as well in-service teacher education system (Peeraer & Petegem, 2012).

It provides adequate and sufficient technical support to teachers for better teaching-learning experiences. It makes enable them to access information from teacher education authorities namely NCTE, AICTE, NCERT, NAAC, UGC and follow those guidelines regularly. ICT based tools supportive in nature for their personal (attitude) and professional life (knowledge & Skills). The traditional method of teacher education is not professionally designed, the invention of Information and Communication technology modified those methods according to need of individual (Bhattacharjee & Deb, 2016).

ICT based teaching methods is suitable for the creation of a better learning environment in classroom because these are based on pedagogical attitude and beliefs. ICT based application is useful to identify valid and conducive information for the teachers (Pre-service and In-service). The storage of information called databased which became possible with the invention of ICT that is effective and useable to promote teaching profession. It creates collaboration, integration, and enhancement of coordination between teachers of any institution (Byrnes et al., 2014).

Modern social media platforms (Twitter, Facebook, Telegram like other) also helpful for teachers to make their profession easy, productive, innovative and interesting by which they share information professionally. These platforms based on communication technology and give better experiences for teachers to assimilate those in their teaching profession

(Multimedia, 2005), (Cornu, 1998).

SWAYAM is new web portal, launched by Govt. of India for the teachers (Pre-service & In-service) based on MOOCs (Massive Open Online Courses) which is also became possible with the influence of ICT. Another communication and technology-based application like Podcast (audio files), Blogs (web-based journals), Digital library, Online repositories, Database also very effective and useful for teachers because these provide information rapidly and quick (Kaur, 2016), (Bhattacharjee & Deb, 2016).

### **IMPORTANCE OF ICT IN TEACHER EDUCATION**

ICT has own importance and significance for pre-service teachers as well as in-service teachers. It gives them a simple access and availability of resources to use those in their teaching profession. Various types of learning programme initiated for distance and open learning system of education in which one is virtual learning concept that utilize by teachers which was not possible without the intervention of ICT in the field of education. This learning not affected by distance, time and presence of teachers for the facilitation of teaching-learning environment. The collaboration between teachers is very essential for pre-service and in-service teachers, which is promoted by the use of ICT in teacher education. When teachers learnt in collaborative participation, they learn very well and also exchange their views and ideas for any particular concept. ICT derives various tools to produce collaboration between teachers and their colloquies (Usun, 2009).

The multimedia approach of ICT is very interactive, adequate and sufficient to enhance their understanding and management of knowledge. The outcome of multimedia approach namely mobile, television, computer programs are having their importance regarding their utility that is also useful for In-service and pre-service teachers. In-service teachers have a time limit to teach in their classroom, the use of ICT also remove that time limit and give them flexibility to maximize their teaching-learning goals (Riegel & Tong, 2017).

Today various teaching professional development programmes started by the various teachers training institutions in distance and open learning mode for Pre-service and In-service teachers with the help of ICT based tools. Traditional computer-based technologies became more advanced, fast-growing and interactive with the development of digital communication technologies and allows teachers to share information in digital mode with remote area students and communicate them without any hurdles and barriers (Zhang & Martinovic, 2009).

The application of ICT like word processing, data-based software, repositories, digital content also allows teachers (Pre-service & In-service) to make their task simple, easy and useful for teaching-learning process. Open educational resources provide adequate content material and expert suggestions within a limited period which is not possible without the intervention of Information and Communication Technology. The web 2.0 (like YouTube) also the output of digital communication and allow teachers to give feedback and suggestions synchronously. Web-based tools and applications like learning management systems, digital libraries, open repositories, webinars, and online collaborative workshops also have importance and may allow teachers to delivered content materials easily and sufficient manner (Kaushlendra Pathak & Nawal, 2018).

ICT is the combination of the technological outcome and theoretical aspect. It is very effective to ensure the accountability of teachers regarding their institutions. In the 21<sup>st</sup> century in any organization, the coordination between employee and responsible authority is a challenging issue for administration. In-service teachers facing various problems related to administration, the use of ICT in administration, sort out those problems and provide adequate and appropriate solutions for those problems. Administrative authorities give quick responses and order/ suggestion to teachers and teacher trainees related to their queries which is frequently asked for the clarification of general problems, that became possible with the invention of ICT. Various software and application-based tools are using by In-service teachers for assessment process for learners to identify their learning achievements. the training of ICT based tools is very important for Pre-service teachers because it satisfied them according to their school curriculum and course structure (Pearson, 2003), (Goktas, 2008).

## CONCLUSION

In our country teaching is an honourable and respected profession for the society and future of country depends upon teachers because they delivered informations form one generation to second generation, so the preparation of best teachers also a responsibility of the authorities which are related to teacher education. ICT is best option for the production of the best teachers. It is very helpful for Pre-service as well as In-service teachers. With the help of ICT teachers updates their knowledge, enhanced their skills and modified their attitude for their teaching profession. The digital cope of educational institutions with digital culture became possible with the help of Information and Communication Technology. It works as an agent which brings a rapid change in teacher education system. It also gives better opportunities to teachers (Pre-service & In-service) to make their teaching adequate and effective for the development of education.

## REFERENCES

- Aviv, T., & Tesler, B. (2017). The Impact of the National Program to Integrate ICT in Teaching in Pre-Service Teacher Training. *Interdisciplinary Journal of E-Skills and Lifelong Learning*, 13, 151–166. <https://doi.org/10.28945/3876>
- Bhattacharjee, B., & Deb, K. (2016). Role of ICT in 21 st Century's Teacher Education. *International Journal of Education and Information Studies*, 6(1), 1–6. <http://www.ripublication.com>
- Byrnes, M., Manente, C. J., Carolan, R. G., Hughes, M. C., Pickard, A., & Kaufman, K. (2014). *Mid-Atlantic Education Review*. 2(1), 0–11.
- Cornu, R. Le. (1998). *ICT in the practicum in preservice teacher education*.
- Gill, L., & Dalgarno, B. (2008). *Influences on pre-service teachers ' preparedness to use ICTs in the classroom*. 330–339.
- Goktas, Y. (2008). *A Review of ICT Related Courses in Pre-service Teacher Education Programs*. 9(2), 168–179.
- Kaur, H. (2016). *Role of ICT in Teacher Education*. 7(December), 18–21.
- Kaushlendra Pathak, & Nawal, M. K. (2018). *ICT in Educational Institution : Need , Role*



- and Importance. *IOSR Journal Of Humanities And Social Science (IOSR-JHSS)*, 23(1), 42–46. <https://doi.org/10.9790/0837-2301084246>
- Multimedia, I. E. (2005). *ICT in pre-service teacher education in Portugal: trends and needs emerging from a survey*. 11(11), 153–167.
- Pearson, J. (2003). ICT and teacher education in Australia. *Pedagogy and Education*, 12(1), 39–58. [http://faculty.ksu.edu.sa/Alhassan/2503/ICT and teacher education in Australia 2003.pdf](http://faculty.ksu.edu.sa/Alhassan/2503/ICT%20and%20teacher%20education%20in%20Australia%202003.pdf)
- Peeraer, J., & Petegem, P. Van. (2012). *Information and communication technology in teacher education in Vietnam: from policy to practice*. 89–103. <https://doi.org/10.1007/s10671-011-9106-9>
- Riegel, C., & Tong, Y. (2017). Educational Technology and Teacher Education Programs. *Teacher Education and Practice*, 30(4), 662–684.
- Tezci, E. (2011). *Factors that influence pre-service teachers ' ICT usage in education*. 9768. <https://doi.org/10.1080/02619768.2011.587116>
- Usun, S. (2009). *Information and communications technologies ( ICT ) in teacher education ( ITE ) programs in the world and Turkey*. 1(1), 331–334. <https://doi.org/10.1016/j.sbspro.2009.01.062>
- Zhang, Z., & Martinovic, D. (2009). ICT in teacher education: Examining needs, expectations and attitudes. *Canadian Journal of Learning and Technology / La Revue Canadienne de l'apprentissage et de La Technologie*, 34(2). <https://doi.org/10.21432/t2wk5t>
- Zhou, Q., Zhao, Y., Hu, J., Liu, Y., & Xing, L. (2010). *Pre-service chemistry teachers ' attitude toward ICT in Xi ' an*. 9, 1407–1414. <https://doi.org/10.1016/j.sbspro.2010.12.342>