

2019

# TEACHERS' PROFESSIONAL DEVELOPMENT AND ICT IN EDUCATION



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# ICT in Education in Learning Mathematics in India

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## ABSTRACT

Information Communication Technology (ICT) is unanimously acknowledged as a significant catalyst for social transformation and national progress of any country. India has enormous geographic disparity in ICT use but at the same time she has greater potentialities and process the largest ICT workforce in the world she has recognized the importance of ICT in education as early as 1984-1985. The role of ICT is diverse in the delivery of good and highly competitive in all the four areas of education. It cannot be separated from any of the areas. Increasingly available ICT materials facilitate the learner as well as the teacher to enhance their horizon of knowledge in order to meet out the challenging competitive educational environment. Curriculum for the various levels should be modified in accordance with the changing ICT environment. The curriculum framer needs to update with the emerging trend. Educational program consist of all the activities that are directed towards educating the citizen of the country in various modes of instruction and training. Information Communication Technologies are a very board area in which every device facilitates learning. According to Philip L. Hosford "education is the sum total of learning with both individual and social learning". When one aspect interacts with one another in the sociality, the learning gets meaningful. Therefore, it is necessary to see the interaction pattern among the learner, teacher, curriculum and educational program with ICT for the emerging trend in Higher Education. Higher Education has been undergoing tremendous changes and reformation since the beginning of 21<sup>st</sup> century because a wide cross section of the society criticized it in the late 20<sup>th</sup> century.

Teacher-Technology=Teacher Zero.

ICT is a tool which if used effectively, can show learners that education is something which they can do for themselves. Development of ICT has provided new opportunities for delivering instruction in schools in innovative ways. At the same time, the constructivism movement in instructional design emphasizes the importance of providing meaningful, authentic activities that can help the learner to construct understanding and develop skills relevant to solving problems and not feeding them with more and more information. "Knowledge is built by the learner, not supplied by the teacher" says paper (1990), creating such learning environments seems intrinsically problematic in the traditional setting. ICT assists in creating such an environment. Therefore, it is important that careful planning and design is employed to the possible extent and that the environment also includes proper support and guidance and rich resources and tools.

Hence new learning and teaching strategies may have to be introduced to prepare students to become independent learners. Through the use of technology teachers can provide opportunities for the students to learn, think critically and discuss among their peers supported by ICT (Olsen, 2000). Giffon, scales and Lump (1999) are of the view that appropriate use of technologies can make learning for students more interesting and enriching. There are a number of potential benefits of using the computer as a tool for instruction in an educational setting. First, ICT tools help to support cognitive processes by reducing the memory load of the students spend on computation. Third, it allows the students to engage in mathematics that would otherwise be out of reach, thereby stretching students' opportunities.

### **THE ROLE OF ICT IN EDUCATION**

Presently there are four areas of education namely: Teaching, Learning, Curriculum, and Educational program. Information communication Technology has been added essentially in the 21<sup>st</sup> century as a fifth potent area of education (Sampath, 2011). According to the Revised Draft on National Policy on Information Communication Technology in School Education (prepared by the Department of school education Literacy, MHRD in 2011) ICTs are all devices, tools, content, resources, forums, and services, digital and those that can be converted into or delivered through digital forms, which can be deployed for realizing the goals of teaching, learning, enhancing access to and reach of resources, building of capacities, as well as management of the educational system. These will not

suggestions are put forth.


- For the successful implementation of ICT programs in vocational process throughout the country, first of all, the government of India should provide the basic infrastructure facilities (i.e., power connection, computers, Internet connectivity, appropriate audiovisual aids and human resources related to the ICT programs) to all the school and especially to the schools of rural areas.
- Continuous motivation regarding the usages and benefits of ICT in the educational environment should be provided to the rural learners by the competent teachers (who have sufficient knowledge in ICT) and the policymakers should look after the priority needs of the rural learners to involve them in ICT-based educational programs.
- In order to develop the awareness among the young learners regarding the ICT-based education, ICT-related knowledge can be incorporated in the secondary school curriculum throughout the country.
- The competent teachers of the rural schools can provide information/knowledge related to computer-based education to their learners for developing a preparatory ground for ICT infused teaching-learning process in those schools.
- There should be proper arrangements for monitoring the ICT programs at the school level. The state government can appoint some ICT specialists at the district level to monitor the ICT programs in schools at regular intervals of time.
- The state education departments should give proper importance to the professional development of the teachers. These departments can organize discussions, seminars and workshops on the various aspects of ICT in education for all the teachers in specific intervals of time to develop proper knowledge and attitude among the teachers towards the usages of ICT in teaching-learning situations.
- The NCTE should develop the curriculum (infusing ICT) for the teacher education programs at all levels the government of India should empower the teacher training institutions all over the country by ICT driven infrastructure, so that these institutions through their training programs can develop enough skills and capacities among the teachers to use the new digital tools and recourses for providing quality education to their learners.

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