

Recommendations

1. The Teacher training curriculum in the country does not fully acknowledge the new age environment in schools and classrooms. There is a gap between the curriculum taught to teacher trainees and the reality that exists in schools. With the exception of a miniscule percentage of well equipped schools, all the other schools are grappling with chronic issues of proper school buildings, teaching materials, shortage of teachers, absenteeism of teachers, severe drop out rates for children, lack of proper sanitation and drinking water facilities are just a few of the problems. The teachers in our government schools play multifarious roles; trying to deal with these issues and several others. In such a situation, we have a new pressure point and that is introducing ICTs in the school. Teachers technically trained on traditional methods of lesson delivery cannot be suddenly expected to turn into technology wizards and churn out lessons by the hour. This needs a well thought out plan of action on skilling and re skilling teachers across the country and has to be continuous.
 - A. The issues therefore are not of training or capacity building in the regular sense, but that of Teacher empowerment. This requires that existing teacher training curriculum be modified to match the efforts made by the ministry to set up technology enabled environments in schools. Therefore, teacher training curriculum for government and private colleges should undergo a change with immediate effect. NCTE can take a lead in providing direction on this.
 - B. In Service teachers need to be introduced to technology tools, so that they may be able to use them easily. This will require regular training. There is a need for regular skilling of teachers: on using ICT resources to create and manage a learning environment, training in delivering an “engaging and interactive” learning experience, training in creating high quality sharable e content and an immersion experience in creating web 2.0 tools. These opportunities need to be built in within the academic calendar and substantiated with awards and certification to motivate teachers in learning and equipping themselves with these skills. .Heads of schools will also benefit from learning the use of technology in schools, they can provide a clear and effective direction in planning and administration.
 - C. Pre-service training courses (B.Ed.) and their curriculum should be equipped with adequate e-learning component and must provision for equipping prospective teachers in the use of technology resources in class room teaching. The national policy may prescribe a leadership role for NCTE, SCERT and

other state government agencies to help in the development of relevant curriculum.

2. Emphasising learning over content delivery: Developing new learning metrics to measure student learning. The current system of evaluation of student learning does not allow creativity, innovation and research, which are important tools for life long learning. Learning mechanisms that promote mastery or deep learning, facilitate personalised learning based on learning styles and meta cognition can be adopted if teacher training curriculums accept new age technology tools to assess and evaluate student achievement on the basis of learning and not rote memorization. Train teachers to encourage cooperative and team learning environments.
3. Efforts have to be made to create a pool of effective master trainers. There should be a mechanism for scaling up the quality of training to reach the 6-7 million teachers across the country to integrate ICT in education by developing models based on case studies, experience sharing and by organising discussion groups (online and offline).
 - a. Relevant education bodies may be mandated with the task of developing separate ICT enabled course curriculum and e-content for different levels of school education- primary, upper primary, secondary and upper secondary.
 - b. Multiple mechanisms for teacher training can be used such as: face to face workshops, self learning and distance learning. Edusat can still be used effectively. Keeping in view the accessibility issues of the country, Radio and television should be used for both teacher training and delivery of lessons.
4. Digital divide is about access to, and familiarity, with technology. Teachers should have assured access to technology and resources. Provision of One Laptop Per Teacher should be made on a permanent basis. Computers are to be provided for staff rooms in each school. Infrastructure is an important point of intervention to bring ICT in schools. There is a need to look at appropriate software, tools and mechanism that are teacher-friendly and meet their needs in local circumstances.
5. There is a strong need to develop minimum standards for Instructional Design competence, standards for deployment of ICTs in teaching. These minimum standards can guide educators on effectively and innovatively use the new technology tools that focus on learning activities, rather than content delivery or general learner management. Along with these, minimum standards for student evaluation and for maintenance and management of ICT systems should also be developed. In this regard, an open ended approach may be preferred to encourage innovative outcomes.

6. Public Private Partnership can be encouraged to meet several gaps within the existing infrastructure and for scaling up measures.
7. Motivation in teachers is of paramount importance and there is a need to allow space and flexibility for the teachers to discover and explore the possibilities of integrating ICT in education. This will ensure buy in and ownership of educators in integrating ICTs in education. The trainings and performance may be linked with incentives like promotions, awards etc. This will enhance the morale of teachers and ensure their ownership in the change process.