

BACKGROUND AND CONTEXT

ICT is mainly used as an efficient tool of storage, transfer and delivery of professional knowledge and skills from teacher educators to individual teacher learners. ICT in teacher education is used to deliver the necessary knowledge and professional skills for teachers to be efficient and adapt to the challenges and changes in society and the environment. The programme was aimed not only to improve knowledge of faculties/ teacher educators use of ICT in their institutions but also to help to develop new approaches to learning and teaching and extend the co-operation between teachers from different disciplines. Changes in the learning environment aimed to encourage self-directed learning and to allow individual differences in both teaching and learning strategies. It is related to the ways teachers can meet the changes in methods and learning processes to attain a more efficient way to fulfill the achievements and goals. To bring about substantial changes in ICT-based learning, teacher education seems to be one of the optimum area and approach.

ICT in teacher education is limited mainly on enhancing the delivery of the necessary knowledge and professional skills for teacher interface effectiveness, particularly technical competence on effective acquisition and use of resources for work. Teacher is considered to be the architect of the nation. In other words, the future of the nation lies in the hands of teacher. This shows the importance of teacher. One can realize how important education is which makes one a teacher. There are a variety of approaches for professional development of teachers in the context of use of ICT in education. Professional development to incorporate ICT into teaching and learning is an ongoing process. Information and Communication Technologies (ICT) help enhance learning outcomes and improve access to education. ICT literacy is the ability to use digital technology. ICT can be a great tool to enhance education in such areas where it's difficult for those people to study in technology focused institutions.

SCERT has invited teacher educators, experts and faculties from different TEIs and also from National and State level Think Tank members to join in this deeper reflection considering the future role of ICT in teacher education and the learning process. This meeting is being organized on the use of ICT in teacher education centered on the role played by teacher education in the global development of ICT-based education. Teacher education is far from being in the forefront of the global drive towards a comprehensive and pertinent application of ICT in the field of Education. ICT based learning is developing throughout the world and this meeting was arranged to exchange ideas about how to improve the faculties and teacher educators' knowledge about ICT in educational settings. The purpose of this work is to merge some of the reflections concerning the strategies adopted by different institutions working in the field of ICT in different demographic and cultural contexts.

GOALS AND OUTPUTS:

The meeting seeks to create an interface between education and ICT sectors to debate on how ICT can be leveraged at scale to support the teacher education.

The meeting outputs include:

1. Harnessing the power of ICT to address current educational challenges and to ensure equitable quality education and lifelong opportunities for all.
2. Following up actions and relevant partnerships that are aimed to help faculty members develop the potential for integrating ICT in education.

3. Strategies in the context of shaping teacher education in curriculum as sustainable development agenda.

OBJECTIVES OF THE MEETING :

1. To critically examine the preparedness of teacher education institutions – Elementary Teacher Education Institutions, BITEs, DIETs, Training Colleges, CTEs and IASEs – to leverage the potential of ICTs for improving the teaching learning process and diversifying the routes for continuing professional development of teacher educators.
2. To help design a well-thought out Plan of Action for operationalizing ICTs in the teacher education system of the state in short-term, medium-term and long-term perspective, considering the ground realities, cost-effectiveness and sustainability of programmes.
3. To draw up professional development programmes for teacher educators in ICTs in partnership with specialized institutions within the country and outside.
4. To learn from the experiences of other leading states with a view to putting in place a sustainable system of ICTs in the state for school education and teacher education.

WELCOME AND INAUGURATION:

The contributions are presented in order, starting with keynote speakers, MsRanjana Chopra, IAS, Commissioner-cum Secretary, S&ME Dept. Govt. of Odisha, Ms Mansi Nimbhal, IAS, Director, TE & SCERT, Professor H.K Senapathy, Director, NCERT, Professor VasudhaKamat, SNTD Women's' University, Prof AmarendraBehera, CIET, New Delhi.

Ms. Mansi Nimbhal, IAS, Director, TE & SCERT shared the objectives and chaired the session. She requested all dignitaries to share their views on ICT. Information and communications technology (ICT) holds promise in providing not only anywhere and anytime access to knowledge, but also equal opportunities for networking and communications that allow knowledge sharing, participation, and lifelong learning. She emphasized technology can be a powerful education multiplier, but we must know how to use it. It is not enough to install technology into classrooms it must be integrated into learning. Nothing can substitute for a good teacher. It is not technology itself that empowers people – empowerment comes from skills and knowledge.

MsRanjana Chopra, Commissioner-cum-Secretary, School & Mass Education Department, Govt. of Odisha: ICT has revolutionized the entire concept of education, learning and research by offering new opportunities and challenges in creation and dissemination of information by way of Web-based education independent of time, pace and place. It is really a challenging task to strengthen ICT in teacher education because a large majority of the teacher education institutions are unequipped or under-equipped in the terms of digitized and high-tech infrastructure. Teacher education institutions also need to develop strategies and plans to enhance the teaching-learning process within teacher education programmes and to assure that all future teachers are well prepared to use the new tools for learning.

Prof VasudhaKamat: Learning to use computers and the Internet is a relatively simple task, but mastering ICT use as an effective tool to improve teaching and

learning is not. Teachers need training not only in computer literacy but also in the pedagogical application of those skills to improve teaching and learning. But while ICT present new challenges for teachers, they also offer certain benefits. ICT can improve training by providing access to better educational resources; breaking the traditional isolation of teachers; and enabling individualized training opportunities. E-learning provides a way for teachers to gain new knowledge and skills. ICT also facilitate the new paradigm in teacher training that is emerging. Teacher training now involves a continuum of learning, from pre-service training, to in-service workshops and short courses; and to ongoing lifelong professional development. She shared about online courses available on web for free and can be used any time by the learner.

Prof Hrushikesh Senapathy, Director, NCERT Educational systems around the world are under increasing pressure to use the new information and communication technologies (ICTs) to teach students the knowledge and skills they need in the 21st century. It predicts the transformation of the teaching-learning process and the way teachers and learners gain access to knowledge and information. With the emerging new technologies, the teaching profession is evolving from an emphasis on teacher-centred, lecture-based instruction to student centred, interactive learning environments. Designing and implementing successful ICT-enabled teacher education programmes is the key to fundamental, wide-ranging educational reforms. For education to reap the full benefits of ICTs in learning, it is essential that pre- and in-service teachers are able to effectively use these new tools for learning. Teacher education institutions and programmes must provide the leadership for pre- and in-service teachers and model the new pedagogies and tools for learning.

Prof S. L Jena, Lead Coordinator, Think tank shared about the focused themes of the Think Tank meeting and the rationale behind ICT in teacher education. ICTs in Pre service teacher education programmes and its use, recent development. A roadmap will be developed by the end of these two days. It has quality relevance for the teacher education and school education and has very good impact on ICT and the experts are there who will help us in developing the bench mark on how to integrate ICT in teacher education curriculum.

Prof Amarendra Behera, CIET, New Delhi welcoming all the dignitaries, congratulated for thinking of on revisiting the teacher education curriculum, while talking about ICT, developing and integration, implementation will happen and the creation will be there. Definitely in the present situation there are lots of things happening. The digital india vision talks about ICT in all sector even in schools, panchayat sectors. Having e governance and MIS and deliver all services on line.

Ms Yumi Bae, State Chief, UNICEF, giving her heartiest welcome to all dignitaries and SCERT for initiating this kind of workshop shared that ICT represents a new challenge to schools and the teachers. We intend to analyze some of these aspects, but first we mention ICT's role for teachers and teacher training institutes. Motivation and incentives are essential. Teachers can also become motivated by learning about how new technological skills allow them to break their professional isolation, also, teachers can be motivated to learn about technologies if they understand how technology can boost their productivity and improve learning in their classrooms.

EFFECTIVE USE OF ICT FOR QUALITY LEARNING

This session aims to share effective policies and innovative practices on how national, institutional and school strategies should be aligned to provide system-wide support for teachers' effective pedagogical use of ICT, therefore to optimize the benefits of ICT for quality of learning. Specific issues to be addressed under this sub-theme include:

- Integrating ICT into the Teacher Education programme of the State Perspectives
- Reflective conversation on the Presentations for Developing a Blueprint for Integration of ICT into Teacher Education.
- Review of Blue print for Integration of ICT into Teacher Education Programme of the State
- Finalization & Presentation of the Blue print for Integration of ICT

The experts expressed two central aspects: *learning by demand* and *learning with the help of others*.

Learning by demand expresses the lack of support and specification of achievable goals expected from the students by their professors.

Learning with the help of others refers to the fact that students can develop their ICT skills by communicating with other students. Students' self learning needs to be supplemented by experienced instructors.

The Curricula for ICT in Education was launched by Ministry of Human Resources and Development, Government of India for the nation on 13th August, 2013 and has been developed by Central Institute of Educational Technology, National Council for Educational Research and Training.

Guiding Principles are defined as generic; learning to compute and create; hands on learning; safe and secure use of ICT; utilization of infrastructure and resources.

BLUEPRINT FOR INTEGRATION OF ICT IN TEACHER EDUCATION

Ground realities for ICT are discussed as Poor Infrastructure; Inadequate ICT Personnel; Disinterested and untrained Teacher Educators; Insignificant uses of ICT for pedagogic practices; We have ICT aware and ICT user students; Strong Policy Support

According to new NPE (DRAFT) – 2016, ICT to be used for:

- Development and Dissemination of e-contents
- Training (Blended Mode)
- Continuous Professional Development-Life long learning
- Enhance Quality education

The optimal aim of ICT-based education should be the shift from a deficit-based to a competency-based approach. A deficit-based approach is the compensatory approach, the main purpose of which is to compensate for teachers' lack of competence. The competency-based approach aims to integrate teachers' knowledge, skills and experience in building and extension of ICT skills.

ODISHA ICT ROLL OUT PLAN

The following provide a road map to help teacher education institutions meet the challenge.

SL NO	PROPOSED PLAN	TIME LINE
1	A Laptop or a Desktop for each Teacher Educator.	<i>In first six months From August 2016 to 2017 January</i>
2	Offering Online Course MOODLE	
3	Wi-Fi network facility in each institute.	
4	ICT literacy programme for each Teacher Educator	
5	ICT literacy must be to expose teachers to a wide variety of ICT resources – hardware, software as well as digital learning resources	
6	Every teacher educator must have an institutional e-mail ID	
7	Every teacher educator must be member of academic sites like: Academia.edu; Quora.com; linkedin.com; NROER;	
8	Every teacher educator must create and upload resources/ e- materials in Written format, PPT format, Images, Videos, lesson plans, on web-TeacherTube, Facebook, etc.	
9	Ten TTIs such as PMIASE, RNIASE, NDWCTE , NKCTE, DIET Khord, DIET Dolipur, DIET Baripada, DIET Sonepur, DIET Bisama Cuttack, BITE Gorumahisiani, would be developed as model Excellence ICT institutions	
10	Selection of 100 teacher educators across the state and to impart training to them on ICT integration. RIE, NCERT & SNDT University would be requested to provide required training	
11	Organizing Professional Learning Community of 25 members to share experiences on ICT in TE and 3 members team would work as moderator	
12	Revisit our B. Ed. syllabus to make the syllabus practical and need based	
13	Teacher educators should prepare ICT based materials for classroom use	
14	Students’ teachers would be advised to bring their own ICT devices	
15	In some classes Zero lecture teaching practices may be practiced	
16	ICT based small class interaction be organized	
17	Content, Pedagogy and ICT blended strategies are to be flowed	
18	Student-teachers and teacher-educators should be encouraged to use free learning resources available in different websites	
19	Cooperative and collaborative class strategies are to be practiced	
20	Institutions may develop their own. Repository and a state level Repository at SCERT level may be created	
21	Training on assessment (Concept map, Rubric, Portfolio and other assessment strategies) and LMS will be imparted. Students are to be encouraged to produce user generated recourses.	

22	TTIs should develop their own portal and repository, Similarly at state level portal and repository may be created to prepare a state level platform for exchange of ideas and to create and use e-resources	<i>In next six months from February 2017 onwards</i>
23	Continues on-line and off- line monitoring and evaluation should be developed as an inbuilt mechanism	
24	Integrate Evaluation & Continuous assessment: Concept maps, rubrics, eportfolios etc. and feedback.	
25	Updating Curriculum of TEP, Teaching & learning with ICTs	
26	Creating a network of TEIs in Odisha through Video conference	
27	Impart Training on ICTs in Education – by NCERT-SNDT team	
28	Users generated contents by Teacher Educators and sharing on OER	
29	Continuous Monitoring - Online & offline through forum and VC	

Teachers should have the facilities to develop learning processes based on creativity related to the subjects they teach. As such, teachers must be prepared to learn the basics of ICT, to incorporate new technology, and new pedagogical methods to improve their teaching. We must try to approach ICT-based education with our students in reshaping the everyday life.

Reflections & Sharing:

- Students learn best in collaboration with peers, teachers, parents, and others when they are actively engaged in meaningful, interesting tasks.
- ICTs provide opportunities for teachers and students to collaborate with others across the globe. They also provide new tools to support this collaborative learning in the classroom and online.
- ICTs can provide powerful tools to help learners access vast knowledge resources, collaborate with others, consult with experts, share knowledge, and solve complex problems using cognitive tools.
- ICTs also provide learners with powerful new tools to represent their knowledge with text, images, graphics, and video.
- ICTs can be used to support the learning environment by providing tools for discourse, discussions, collaborative writing, and problem-solving, and by providing online support systems to provide platform to students' for their evolving understanding and cognitive growth.
- The challenge for ICTs in Teacher Education is to assure that the new generation of teachers, as well as current teachers, are well prepared to use new learning methods, processes and materials with the new ICT tools for learning.
- Teachers need to update their knowledge and skills as the school curriculum and technologies change. Individuals develop in stages and mature over time.

ENVISIONING ICTS FOR TEACHER EDUCATION

- Revisiting the Position Paper and Action Plan on ICTs for Teacher Education for renewal and extension.
- Re-conceptualizing ICTs in a wider perspective in terms of :

- Building basic infrastructure in DIETs, CTEs and IASEs to reach out varied and larger clientele groups – students, student-teachers, teachers, teacher-educators etc.
- Implementing basic ICT curriculum in pre-service Teacher Education courses – making it relevant, and updated.
- Using ICTs as teaching-learning (pedagogical) tools- improving the quality and relevance of transactional approaches.
- Meeting the unmet demand for training in ICTs of a larger group of consumers – planning for professional development
- Leveraging the potential of ICTs for content delivery in Teacher Education programmes.
- Strengthening educational governance, planning and management of TEIs
 - Re-conceptualizing ICTs in a wider perspective in terms of :
 - Learning from the experiences of frontline states in use of ICTs for Education
 - Developing e-Resources and online courses, involving faculty and student-teachers of TEIs
 - Extended networking with specialized institutions and peer TEIs
 - Provision of funds to sustain the programme – affordability and optimum utilization.

CONCLUSION

The teacher education system empowered by ICT driven infrastructure can have a great opportunity to come up to the center stage and ensure academic excellence, quality instruction and leadership in a knowledge-based society. Rapid changes in technology ensures that ICT will grow in the classroom. It is predicted that there are many benefits for both the learner and the teacher, including the promotion of shared working space and resources, better access to information, the promotion of collaborative learning and radical new ways of teaching and learning. Ultimately, the use of ICT will enhance the learning experiences for children, helping them to think and communicate creatively.

As professional teacher educators continually develop pedagogical use of ICTs to support learning, teaching, and curriculum development, including assessment of learners and the evaluation of teaching, they will:

- Demonstrate understanding of the opportunities and implications of the uses of ICTs for learning and teaching in the curriculum context;
- Plan, implement, and manage learning and teaching in open and flexible learning environments;
- Assess and evaluate learning and teaching in open and flexible learning environments.