Capacity Building of Teachers through ICT in Education Curriculum

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Abstract- *The Digital India Campaign (2015) focusing on the three vision areas: Digital Infrastructure as Core Utility to Every Citizen, e-Governance and Services on Demand and Digital literacy and empowerment of citizens strives to transform India into a digitally empowered society and knowledge economy. The three cardinal principle of the draft New National Education Policy (2016) viz., access, equity and quality could also be served well by harnessing the huge potential of ICT. In this context, ICT intervention at school system to leverage the outcome of education is also a goal. To achieve this goal, human resources i.e., teachers are the game changers and hence the emphasis lies on the capacity building of teachers. National Policy on ICT in Education (2012) also states capacity building of teachers as key to the widespread infusion of ICT enabled practices in the school system. ICT in Education curriculum for teachers becomes the necessity to define the focus, content, strategy for in-service trainings to build capacity of teachers in integrating ICT in Education. This article brings out the features and scope ICT in Education Curriculum for teachers developed by Central institute of Educational Technology (CIET), a constituent unit of National Council of Educational Research and Training (NCERT). This curriculum is being implemented to build the competencies of teachers in integrating content, pedagogy and ICT in teaching and learning. It proposes a blended approach for training integrating face to face and online modes. With this competency based curriculum, it is possible to prepare the teachers to face the expectations of current digital era.*

Keywords: ICT training, Continuous Professional Development (CPD), ICT capacity building, In-service teacher training.

Introduction

Pre-service teacher education is gaining a lot of momentum towards improving its quality in terms of curriculum to deliver standard teachers to the society. However, the need of in-service training is realised as the needs of the society keeps changing due to the new interventions and discoveries. In the digital era, innovation is evident and it is faster in its evolution as well. Hence the teacher, even who is trained during pre-service on use of ICT in teaching learning process is expected to keep swimming along the changes and keep themselves sustainable during the changes. There arises the need for capacity building programmes as and when there is a change in the expectations. ICT in Education curriculum for teachers address the scope, mode and the

way ahead in the process of capacity building of teachers for integrating ICT in Education. It encompasses of courses that focus on skill development where knowledge acquisition is seen to be incidental. Also it follows the blended approach for delivery of the courses which gives scope for continuous professional development of teachers overcoming the challenge of time, place etc. ICT in Education curriculum is a model for building competencies in a teacher to integrate content, pedagogy and ICT effectively.

Need For ICT in Education Curriculum For Teachers

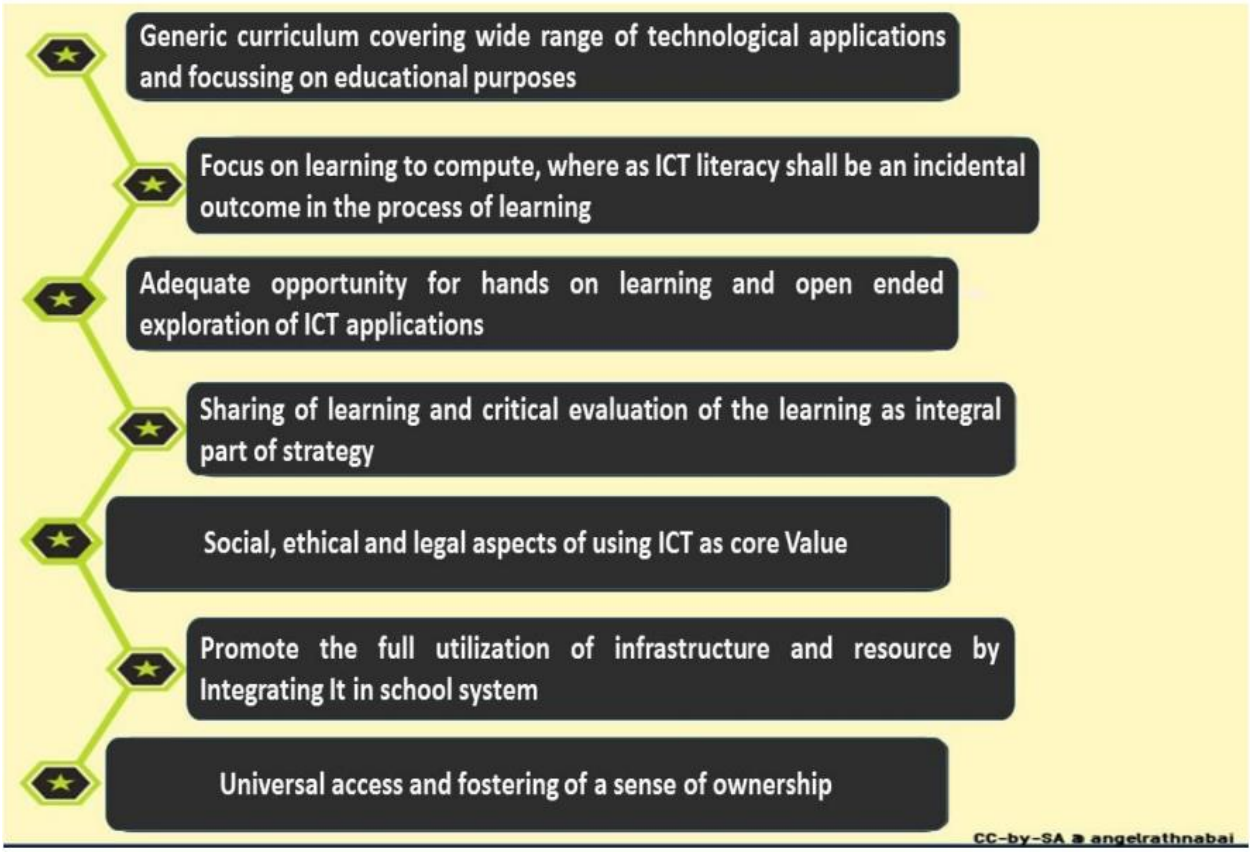
Many countries have realised ICT skills to be mastered alongside of the reading, writing and numeracy skills. National Policy on ICT in Education (2012) states that capacity building of teachers as key to the widespread infusion of ICT enabled practices in the school system. Several efforts have been taken by Government of India (GoI) in deepening the use of ICT in Education. One such initiative is ICT@School Scheme, through which GoI was funding the states a lump sum amount to establish infrastructure, train teachers and establish ICT resources. Though investments have been done on these areas, third party evaluation of ICT@School Scheme done at several states (CIET, 2014) has revealed that there is no significant improvement in use of ICT in classroom transaction that could impact the learning outcome of students. At several schools, ICT infrastructure is unused due to lack of confidence in teachers to use it or due to lack of leadership among teachers/administrators in taking responsibility of managing the ICT environment. Though five days training has been provided at state level on use of ICT, lack of competency in integrating ICT in teaching and learning of curricular subjects was reported as one of the major barriers by teachers during interview (CIET, 2014) and various trainings conducted at national and state level.

Rather than providing ICT literacy training it is necessary to develop competencies. So that teachers can sustain themselves adapting to the changes and build the ICT environment as per the requirement. This can be achieved only when the teacher is confident in adapting to changes. Software or hardware based training only builds confidence in handling the specified tools rather than building skills to address their needs. Also, the time and location becomes the barriers in bringing teachers to get training as and when the requirement arises. To address these challenges, there is a need to bring a blended approach in the content to be derived as well as in the mode of delivering training.

Though ICT@School defines the training scheme with content, a detailed description of the content and strategy for training teachers was required for the implementers to follow and maintain uniformity across the country. ICT in Education Curriculum for teachers was developed by Central Institute of Educational Technology (CIET), a constituent unit of National Council of Educational Research and Training (NCERT), India as a model that has realised all these requirements in developing teachers' competencies to sustain themselves in use of ICT in education in the changing world.

Guidelines Principles of The Curriculum

ICT in Education curriculum is governed by the following principles.



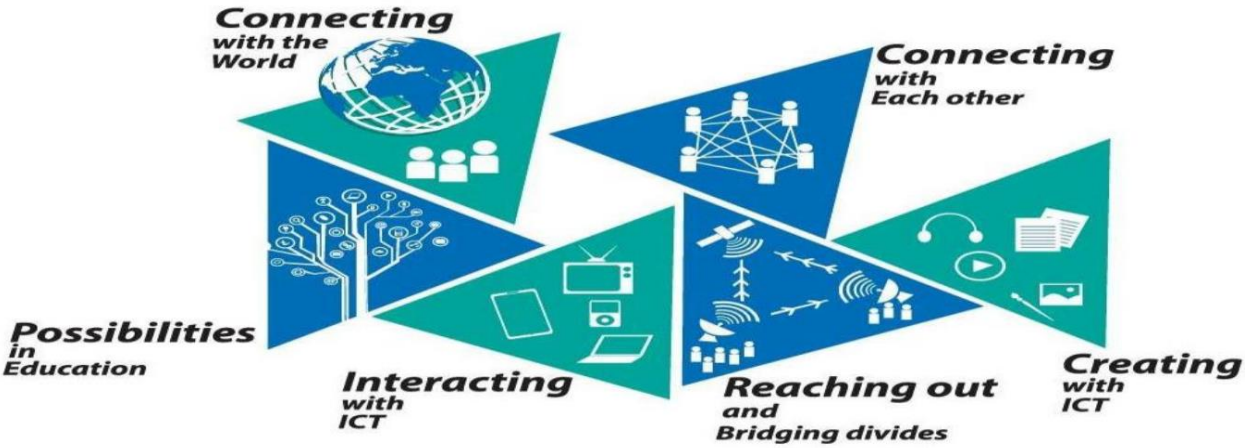
ICT in Education curriculum for teachers is generic in nature that could be adopted/adapted/ customised as per the specific need of chosen stakeholders. The courses specified in the curriculum give exposure to wide range of technological applications with focus on educational purposes. Ex: Planning, presenting, assessing, transaction, communication etc. To discourage software piracy, Free and Open Source Software (FOSS) is explored across the curriculum. This curriculum focus on learning to enhancing competencies which includes learning to create using a various tools and techniques, whereas ICT literacy i.e., knowledge about the tools and ability to use it is seen as the incidental outcome in the process of learning.

Adequate opportunity for hands on practice is part and parcel of each session and also opportunity is provided for open ended exploration of ICT applications than imposing a specific application. Course content has inbuilt scope for critical evaluation and sharing of learning for feedback and improvement. Peer sharing and review is inbuilt as part of the course strategy. Awareness on the social, ethical and legal aspects of using ICT is integrated across the course content to build a healthy ICT environment and ensure safe and secure use of ICT. It is integrated such that it is practiced intentionally. Creation of original content, taking pride in their creation and duly recognising others' contributions are core essence of the curriculum. This curriculum aims at ensuring the full utilisation of infrastructure, resources, integrating it with the school system. This fosters the sense of ownership and also enables universal access among the

stakeholders. Keeping these guiding principles as base, the courses are developed and delivered to the teachers to instill the same principles further in action.

Learning Strands of the Curriculum

ICT in education curriculum for teachers focuses on six major strands that explains the objectives and content of the courses delivered based on this curriculum.



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Information is spread across the universe and internet is the gateway that gives access to this information in the digital space. Having access to such updated and authentic information is a boon to teachers in providing appropriate information to students. A teacher needs to develop skill to search appropriate information based on the requirement, access it from various resources like text, audio, video, interactive activities etc, organise it and use it as per the need in safe and secure manner. Such skills in terms of searching, retrieving, organising and presenting information through internet are provided as part of the courses enabling the teacher to be connected with the world.

ICT provides space for people to be connected with each other through various subject based forums, groups like telegram, WhatsApp etc, electronic communication system like email etc. This feature provides opportunity for teachers to interact with other teachers crossing the barrier of location, time, demographic difference etc. It also can provide a warm environment overcoming the fear of being tagged, named, titled etc. with even unknown teachers across the country to clarify the doubts, queries, discussions etc. that provides a better learning environment. Practicing skills to connect with each other in terms of participation through various communication techniques and systems is the scope of the strand - connecting with each other.

Creating various resources using different tools and techniques supports teacher to plan the use of ICT in the process of teaching, learning and assessment based on context. The wider

the range of tools, devices, software applications and techniques the teachers are aware of and can productively use, the wider will be the opportunities for developing their imagination and expression that impacts the students learning to a greater extend. This enables a teacher also to use ICT not as a mere information delivery tool but as a enabler to construct knowledge. Thus teacher acquire skills of creating with ICT using various tools and techniques that enables a teacher to become a prosumer rather than being just as a consumer.

While creating with ICT, teachers also encounters various devices where a broad conceptual understanding of how ICT devices and tools work, along with an operational knowledge of safe and efficient use of ICT is the aim, learning basic ways to troubleshoot and working around problems are developed (NCERT, 2012). By interacting with ICT, skills for handling ICT tools are developed and not through rote learning.

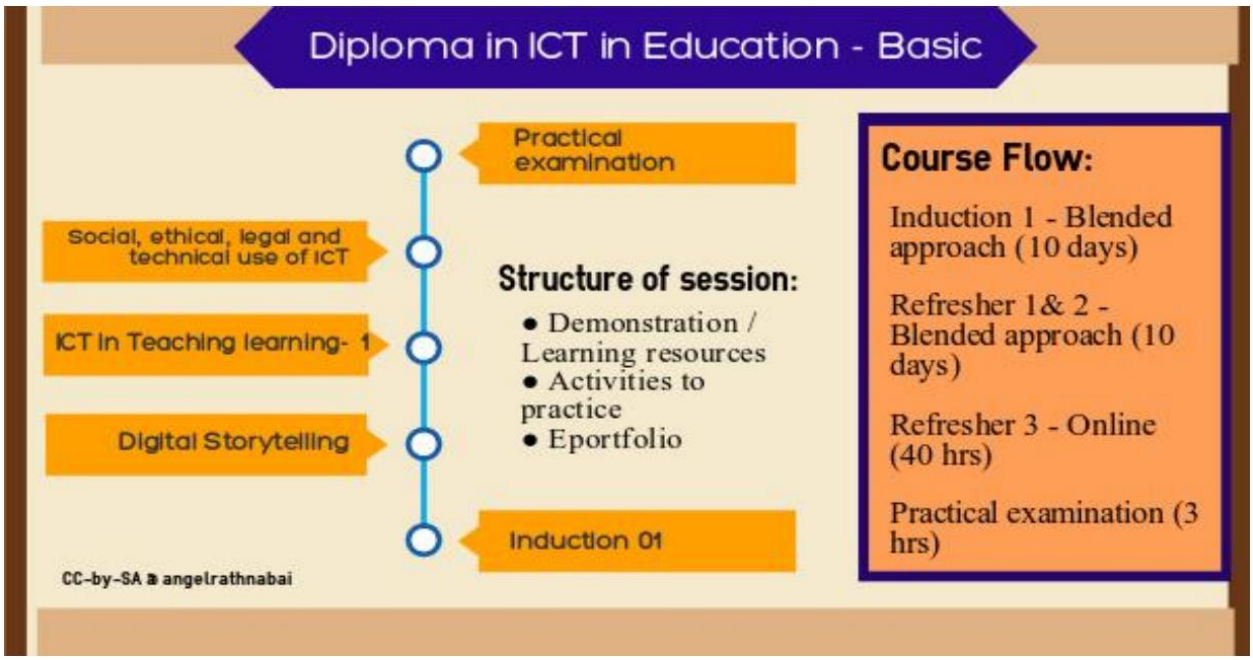
Understanding the possibilities of using ICT in education includes understanding the use of various resources for addressing educational needs, tapping the potentials of digital resources and tools in improving learning outcome of students, developing a conducive learning environment, planning learning experiences effectively, and implementation in a meaningful way etc.

Skills to bridge the gap that exists in terms of social, geographical difference is sole responsibility of teacher while providing learning experience. Tapping the potential of ICT to bridge the gap needs exploration and understanding the tools and techniques. Building such skills is the focus of this strand known as bridging the gap.

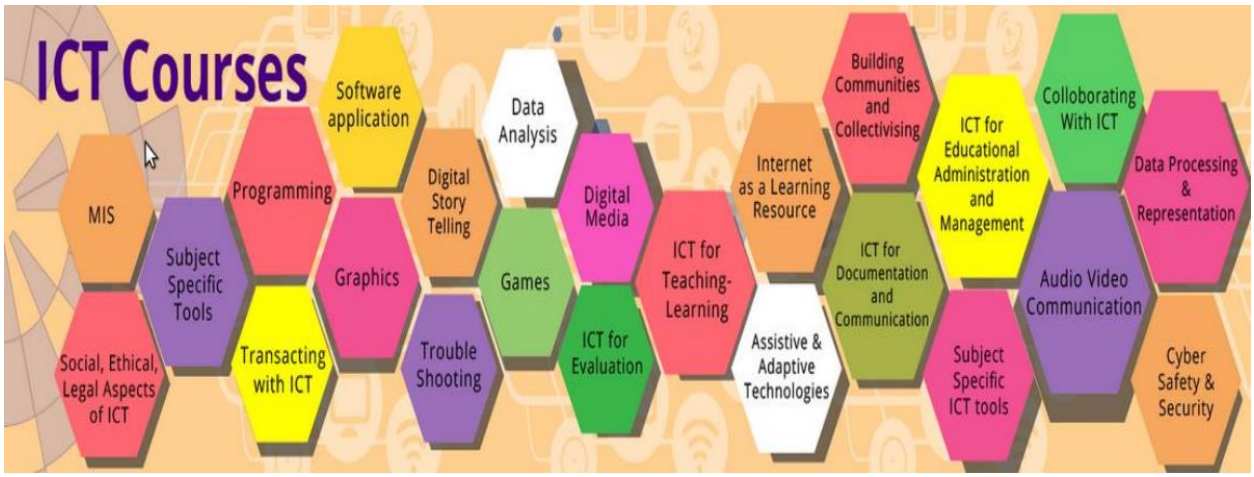
ICT in Education Course

Courses are majorly classified as induction and refresher. Induction is basically a face to face training where only materials are accessed from course portal and e-portfolio are maintained digitally. Whereas refreshers are delivered in blended mode or completely through online. Course content is delivered in various forms in a blended mode like face to face demonstration, online sessions, video lectures, online discussion, interactive activities etc. Induction courses focus on developing ICT skills whereas refresher courses focus on developing pedagogical skills for integrating ICT in Education. Teacher needs to practice teaching and instructional design skills to that they can engage students in constructivist thinking, experimentation, and problem solving and learning linked to real life situations using various ICT tools and techniques and capturing it as e-portfolios (Kheng et al., 2000).

Course is offered at two levels. First level includes one induction and three refreshers which is mandatory for all teachers and will be certified by NCERT as Diploma in ICT in Education – Basics.



Second level is a collection of advanced courses as listed below that can be chosen as per the interest, need, specialisation and receive certificate on completion of each course.



As the course is built with more hand on activities, the teachers who undergo this course will develop confidence from practicing. Support to hand hold is also devised in terms of e-groups, forums, chat room etc. The approach of the course is such that, activities are extended and practiced in the school in real classroom setup and e-portfolios are maintained to provide timely feedback for improvement. Advanced courses are delivered completed online.

Conclusion

ICT in Education curriculum developed for teachers is a model curriculum encompassing innovative methodologies integrating ICT and modeling it use. Thus the curriculum aims at

building the competencies of each teacher towards integrating ICT in Education to improve teaching learning process. As the teachers provide a rich learning environment, the students have scope of improving and achieving the learning outcome. This curriculum focuses not just developing ICT skills but focuses more on building skills for integrating content, pedagogy and ICT meaningfully. The courses based on this curriculum are delivered through course portal http://ictcurriculum.gov.in/

References

Govt of India, Department of School Education and Literacy, MHRD. (2012). *National Policy on Information and Communication Technology (ICT) In School Education*. Retrived from- http://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/revised_policy%20document%20ofICT.pdf.

Govt of India, Department of School Education and Literacy, MHRD. (2016). *Some Inputs for Draft National Policy on Education*. Retrieved from- http://mhrd.gov.in/sites/upload_files/mhrd/files/nep/Inputs_Draft_NEP_2016.pdf.

Kheng, C. G., Ho, J., Cheng T. and Ling, B.P. (2005 28 Nov- 02 Dec). *Using ePortfolio in Singapore Schools. Paper presented at the International Conference on Computers in Education. Singapore*. Retrived from- www.moe.gov.sg/edumal/rd/publications/using_eportfolio_spore_schs.pdf on 2.11.18.

NCERT. (2010). *Information and Communication Technology for the School System: Curricula for ICT in Education*. Retrieved from- http://ictcurriculum.gov.in/mod/resource/view.php?id=4324#/ on 2.11.18.

NCERT. (2014). *ICT@Schools Scheme Implementation in the states: An Evaluation*. Retrieved from- http://ictschools.ncert.gov.in/wp-content/uploads/2017/08/ICTEvaluationReport.pdf.