Consultation on 'National Policy on ICTs in School Education'

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Short Discussion Paper

Teacher Education and ICTs

Anjali Noronha

Research and Material Development

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When we talk of ICT or Information and Communication Technology in any context (here we would be talking in the context of Teacher Education for School Teachers) we need to be clear as to what we mean by ICT and what we include in it. Usually when we talk of ICTs we think of particularly computer based technologies and in a more extended form electronic media technology of video, TV, radio and sometimes telephones as well. We do not usually include books (textbooks and library books), the blackboard, other materials for communication, interaction and knowledge building like puppets, cards, games etc. and even ways of interaction between teacher and student, as well as among student peers. If we look at the definition of technology – a scientific method of achieving a practical purpose' (viz. in the case of school education - the goals of any curriculum) or the definition posited by the draft policy on ICT in education of ICTs as

" a diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information."

Both these definitions could (and I feel should) include all non-electronic or electrical forms of communication used in education – books, blackboard, other teaching learning materials and processes for interaction in the classroom. If we do this, there would be implications for teacher education in terms of choice, development and the use of all these technologies. The perspective would then be integrative with one technology supplementing not substituting the other on the basis of its strengths.

The second point I would like to make is that the most important issue in the use of these technologies in education is the perspective on education itself as well as the perspective on learning and creation and internalisation of knowledge. The use of each of these technologies in education would be different if the objective of education is to create 'an efficient workforce' (as mentioned in the mission statement of the draft ICT policy than if were to create critical thinking citizens.

Similarly the use of technologies would be different if learning is perceived as a passive process directed by the adult or an active and participative process which is learner centered . If the ICT in Education policy is to build on the perspective of the NCF 2005 it would obviously have to be based on the latter view. (Incidentally present teacher education courses hardly orient the teacher in the use of textbooks, library books, other materials and participative interaction with students, particularly in the perspective of the NCF 2005.)

Teacher education's relationship with ICTs would be influenced by

a)   What is meant by and included in ICT?

b)   What is the perspective on learning and education?

c)   What is the curriculum at different levels of education (what is to be taught and how?)

d)   The policy on curriculum development and the role of the teacher in this.

e)   The policy on pre-service and in-service professional development of teachers – whether there is provision for continuous interaction?

f)   What technologies can be harnessed towards teachers' own development?

I will take up a few of the above issues – If we include the non-electronic technologies in our understanding of ICTs then teacher education would include the development of capacities in the teacher to use the textbook as a facilitative instrument – supplementing it with library books, discussions – small group and whole class, a creative use of the blackboard, use of computers (to reference, to create materials with students – rather than just teach the parts of a computer and use of different programs, develop projects etc.) , video, radio, (both use as well as development of films, cassettes or cds – particularly for language learning). This is a much more complex teaching learning method than textbook reading or chalk and talk. The methods of teacher education will themselves need to become more participative.

Teacher as curriculum and materials developer becomes much more possible if such is the policy. This is what the focus group on Curriculum and Textbooks has recommended.

The Teacher focus group recommendations emphasise the agency of the teacher, a strong pre-service

course of five years duration with specialisation towards the end in particular stages of education, as well as a strong in-service professional development process.

 The Educational Technology Focus Group has recommended –

• Create a system of lifelong professional development and support, especially for educational leaders and managers such as headmasters and principals.

• Encourage ICT literacy for official and personal use to build comfort and later creativity in educational work.

• Support the development of and nurture teachers' self-help groups / professional development groups both on the ground and online.

In pre-service teacher education

• Introduce teachers to flexible models of reaching curriculum goals.

• Introduce use of media and technology-enabled methods of learning, making them inherent and embedded in the teaching-learning process of teachers.

• Train teachers to evaluate and integrate available materials into the learning process.

• Enable trainee teachers to access sources of knowledge and to create knowledge.

Teachers need to be equipped in abilities to use different types of technologies in the teaching of different subjects and they also need to be equipped to teach the elements of that technology to students if that is one of the subjects in school at that level. The perspective on the stage of introduction of computers in schools is particularly important in this context. At present the new NCERT syllabus does not outline the syllabus on computer education (The document on IT syllabus on the website – pertains to the 2000 NCF and is not very clear – particularly for the elementary classes, though it does have some publications on learning with computers.

What would also be of help is a document on the use of different ICTs in the context of the teaching of different subjects and ways of using these.

The abilities needed by the teacher at different levels will need to include the abilities required for different subjects and will depend also on when computers is introduced in schools.

The use of different technologies for teacher education is important in itself. The use of libraries, interactive materials in communicating ideas on education need to be developed much more. Broadcast technologies like TV programs, teleconferencing and radio can be used but as the focus group on ET cautions – has major limitations if not used with onsite materials. It may be better to consider that the resource person has available good educational videos (like the EDC series on teaching history) which are used along with other materials in the session.

Handy- cams and some digital editing facilities can be used well for developing local content – but should begin only at a pilot phase in some DIETs to develop the methodology.

Similarly teachers can be trained in local radio – developing audio cassettes for language learning etc.

Teacher libraries and magazines need to be developed in the vernacular and made available at all levels from SCERT to clusters and their use ensured in monthly interactions.

Computers and Internet can be a powerful source of knowledge, but there is a lot of trash which needs to be sifted through and teachers' critical abilities need to be enhanced to be able to critically select good materials.

The experiments with cell-phones for academic interactions also need to be looked at and if found successful disseminated widely.

Lastly, two parameters need to be kept in mind in determining the judicious and creative use of all technologies – a) the financial and maintenance factor – expensive technologies that require maintenance and electricity are often ill used.

b) the way in which the technology is used – should be one in which the learner or user is in control and not the technology.