

ICT Integration in In-service Teacher Education Programmes

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Abstract

There are many initiatives in ICT in school education in policy and practice involving Central and State governments, private enterprises in collaboration with or without government support. The role of the teacher education, both pre-service training and in-service are crucial if return on investments are to be maximized. An exploratory study using survey method was conducted in two phases covering teacher education institutions/agency like: SCERTs, DIETs, Teacher training centres, Science centre's, Computer training centre and different agencies in Delhi, Haryana, Punjab, Kerala, Mizoram, Uttar Pradesh, and Rajasthan with the following Objectives:

1. To study the availability of In-service programmes in ICT for teachers at different levels in different states.
2. To study the content of the different In-service programmes in ICT for teachers at different levels in different states.
 - i. To assess the perception of teachers regarding the need for training in ICT through In-service programmes in ICT for teachers at different levels in different states.
 - ii. To suggest measures to improve the training in ICT given through In-service programmes in ICT for teachers at different levels in different states, if any
 - iii. To showcase best practices in the In-service programmes in ICT for teachers at different levels in different states.

This was a UGC Project. The sample of the study was from 22 agencies involved in-service programmes constituting of 1833 teachers

from six states of India. The tools used were questionnaires, interview schedules and focus group discussions. The findings of the study are: Intel and Microsoft were the key service providers among the sample of the study, The ICT Curricula and its training use both Microsoft Windows in all states and free software GNU/Linux OS also in the in-service programmes. The training for ICT as a tool for pedagogy was covered along with basic competencies. IT at school Kerala gave more comprehensive training among the sample. Both KVS and NVS came out as best examples for the country. The complete findings of his study will be dealt in detail in the final paper that how his study is going to have wider implications on the integration of ICT component in pre service and in-service training of teachers. The best practices/ exemplars can be replicated on other platforms and the results of the study can be well utilized for making policies at the Central and State level. (Abstract).

Keywords: ICT; School Education; Teacher Education; Intel; Microsoft; SCERT; DIET; Teacher Training Centres; Science Centres; Computer Training Centre (key words).

1. Introduction

Ministry of Human Resource Development (2009) has stated its vision in the National Policy for ICT in School Education as :

‘The ICT Policy in School Education aims at preparing youth to participate creatively in the establishment, sustenance and growth of a knowledge society leading to all round socio-economic development of the nation and global competitiveness’

When we trace the backdrop of this policy we find that the National Policy on Education 1986, as modified in 1992, stressed upon employing educational technology to improve the quality of education which led to two major centrally sponsored schemes, namely, Educational Technology (ET) and Computer Literacy and Studies in Schools (CLASS) and Information and Communication Technology @ Schools in 2004. Educational technology also found a significant place in another scheme on up-gradation of science education, in the National Curriculum Framework 2005 (NCF) 2005, India's flagship programme on education, Sarva Shiksha Abhiyan (SSA) and in the report of Universal Secondary Education in 2005 by Central Advisory Board of Education (CABE). The initiative of ICT Policy in School Education is inspired by the tremendous potential of ICT for enhancing outreach and improving quality of education. In Delhi State, CAL Classrooms with one computer CPU with UPS, one television monitor, computer cabinet and colourful chairs were provided to 200 schools in 2006. A two day training module to train 1000 teachers was developed and

delivered to CAL (Computer Aided Learning) Resource Group Comprising of 27 teachers and technical persons.

As there are many in service programmes for teachers being organized due to the increased awareness as well as recognition on the role of ICT in everyday life in general and as a part of pedagogy in particular. A study of the in-service programmes for teachers was conducted with following objectives:

1. To study the availability of In-service programmes in ICT for teachers at different levels in different states.
2. To study the content of the different In-service programmes in ICT for teachers at different levels in different states.
3. To assess the perception of teachers regarding the need for training in ICT through In-service programmes in ICT for teachers at different levels in different states.
4. To suggest measures to improve the training in ICT given through In-service programmes in ICT for teachers at different levels in different states.

2. Design and Plan of the Study

This exploratory study used survey method covering teacher education institutions/agency like: SCERTs, DIETs, Teacher training Centre's, Science Centre's, Computer training center and different agencies in Delhi, Haryana, Punjab, Kerala, Mizoram, Uttar Pradesh, and Rajasthan.

The Sample of this study was drawn from the population of in-service teachers in 6 states (Delhi, Uttar Pradesh, Haryana, Mizoram, Punjab, Kerala, and Rajasthan in the place of Punjab). The study covered 22 agencies and 1833 participant teachers.

The sample of participants from the selected states had representation of different levels of schooling such as 35.79% of senior secondary level, 14.95% of secondary level, 21.6% of middle school level and 27.66% primary level. The sample of this study did not have pre primary teachers.

The sample of this study has covered more government school teachers (88.38%), and only 5.95% govt aided, 5.56% private and 0.11% any other schools.

Teachers who constituted the sample were from schools affiliated to CBSE schools (33.93%), State Board schools (50.98%), Directorate of Education Schools(0.82%) and any other schools(6%).

3. Tools used for the Study:

1. Questionnaire for collecting data from the in charge of agencies involved in In-service programmes:
2. Questionnaire for collecting data from participants of In-service programmes
3. Interview Schedule for the participants of in-service programme:
4. Questions for focus group discussions.

4. Procedure of Data Collection:

The data was collected through two phases: Phase-I and Phase-II

During Phase-I data was collected through the questionnaires. During the phase –II of the study data was collected through interview and focus group discussions.

5. Limitations of the Study

The study has the following limitations:

- i. The study is confined to six states of India.
- ii. In service programmes conducted for elementary and secondary teachers only are covered.
- iii. The content of ICT in the in-service was studied through the comprehensive questionnaire.
- iv. The ICT competency was also studied through self-report of the sample through ICT competency test and the comprehensive questionnaire to study the need for training.

6. Major Findings

6.1. Availability of In-service programmes:

All states covered in this study had in-service programmes in ICT. Though there are several agencies of in-service education and training such as NCERT, NUEPA, SIEs and SCERTs, CBSE, KVS, Universities and colleges, Teachers' organizations, Extension education centres, centres for continuing education, Foreign agencies like British Council and other agencies like Kendriya Hindi Sansthan, the study was confined to the programmes conducted by SCERTs, DIETs, KVS and NVS. The study was confined to six states selected.

In **Delhi** In service Programmes were organized through the SCERT, 9 DIETs and Science Centres for different levels of schooling. Intel and Microsoft were the key service providers involved in INSET programmes in ICT.

In **Uttar Pradesh (UP)** Microsoft was the key player to conduct INSET programmes for in-service teachers in ICT/ General with the collaboration of State government. Government has distributed all UP in six mandals for INSET training programmes and established computer labs in DIETs and all six mandals.

In **Mizoram**, SCERT conducted INSET programmes for in-service teachers in ICT/ General for the State government.

Haryana State's SCERT conducted INSET programmes for the Haryana State teachers during 2006.

According to Dr. Jaleel the Director of SCERT Kerala, Government through various initiatives is giving ICT due importance. **Kerala** has Information Technology Curriculum from 8th Standard onwards. In the eight standard basic literacy in IT is given in class ninth the syllabus further strengthens and expands that knowledge to learn other subjects and in class tenth each student is required to do a project in IT education. The ICT Curricula and its training use both Microsoft Windows and free software GNU/Linux OS and the teachers are trained to use both in the in-service

programmes. There were other agencies who were conducting INSET programme for the teachers or train teachers in new technologies working with the IT School. SPACE (Society for Promotion of Alternative Computing and Employment) support IT@school's migration to Free Software through a project covering 2800 schools of Kerala SPACE has trained 500 teachers and distribute GNU/Linux software.

In **Rajasthan** the State Govt.School teachers at all levels were trained through Intel.

To facilitate KVS teachers in implementing innovative learning methodologies and making use of new technologies, Intel had also set up labs at Kendriya Vidyalaya - JNU and Kendriya Vidyalaya - Malleshwaram and Kendriya Vidyalaya - Fort William in the year 2000. In 2009 an ICT Resource Centre at the Zonal Institute of Education & Training Centre, Kendriya Vidyalaya Sangathan, Gwalior was also set up. The Resource Centre is now open for KV teachers for their Professional Development activities. It was inaugurated in March 2009. Intel has its association with NVS since 1999 and has trained more than 3000 teachers till date under the Intel® Teach Program.

6.2 The content of the different In-service programmes in ICT for teachers at different levels in different states:

Following categories of content were covered in the in-service programmes according to the agencies covered in this study:

- a. Computer based instruction: In Delhi all the agencies except the Intel said that they have the content of training programme covering this aspect.86% of the agencies covered content which deals with computer based instruction
- b. Administrative tool: This aspect of ICT use was not given much importance by these agencies as only 41% of the agencies studied had covered this area in their in-service training.
- c. Computer Course ware: 91 % of the agencies covered in this study reported that they had content related to computer courseware in their in-service training programme.
- d. Presentation Tool: 55% of the agencies covered in this study gave training in using ICT as a presentation tool. Power Point presentations were part of the practical work in these training programmes.
- e. Communication Tool: 32% of the agencies studied reported that they had content related to use of ICT as a communication tool.
- f. Research Tool: 27% of the agencies studied reported that they had content related to use of ICT as a research tool.
- g. Evaluation Tool: 59% of the agencies studied reported that they had content related to use of ICT as an evaluation tool.
- h. Collaboration Tool: 27% of the agencies studied reported that they had content related to use of ICT as a collaboration tool.

6.3 The perception of teachers regarding the need for training in ICT through In-service programmes in ICT for teachers at different levels in different states.

94% of the teachers who constituted the sample were having knowledge regarding how to use computers. 99.4% of the sample of teachers who constituted the sample had basic knowledge of computers. 82.76% of the teachers could use word processor. Teachers from Haryana could not make use of word processor.

Only 68.52% of the teachers could make use of spread sheet. 100% of teachers from Rajasthan could use spread sheet. Teachers from Haryana state who participated in this study could not use spread sheet.

Only 28% of the sample could use MS Access which got better with 57% in Kerala. Delhi had 32% and UP and Mizoram had 24% and 26% respectively.

10.42% of the teachers who were part of the sample of this study responded that they are able to use publishing software.

88.71% of the sample of teachers could use power point for presentations. Only 15.17% of the teachers had knowledge of any programming language.

When the teachers were asked about major barriers that they had in the implementation of technology, the responses obtained were: Overcrowded classes (2.81%), Lack of time (2.70%), Lack of Internet (3.15%), Lack of Power backup (55.73%) Lack of System maintenance (3.15%), No computing skills (9.21%), Lack of infra-structure (5.84), Cyber-crime (2.47%), Staff not supportive (3.37%) and Language problem (1.57%).

51% of the teachers from Delhi, 46% of teachers from UP, 59% of teachers from Mizoram, 69% of teachers from Kerala and 46% of the total teachers responded that they considered the management towards integration of technology into teaching as positive.

80% of the teachers from Delhi, 29% of teachers from UP, 78% of teachers from Mizoram, 75% of teachers from Kerala and 69% of the total teachers responded that technology integration was very important

6.4 To suggest measures to improve the training in ICT given through In-service programmes in ICT for teachers at different levels in different states, if any

6.4.1 For improving the training in ICT given through in-service programmes the school should have better Hardware and software.

6.4.2 Provision of E-governance

6.4.13 Provision of Power back up and

6.4.14 Availability of Internet Connection

6.4.5 Best practices in the In-service programmes in ICT for teachers at different levels in different states

Kerala IT@schools was providing full facility to the teachers for ICT training or ICT training programmes for the teachers. The study suggests this model to be an exemplar which can be followed by others.

7. Recommendations and Suggestions

Teachers remain central to the learning process, therefore the in-service and pre-service component should be given due importance as the teachers' pedagogical practices and reasoning influence their uses of ICTs, and the nature of teacher .ICT-use in turn impacts student achievement. ICTs seen as tools to help teachers create more 'learner-centric' learning environments. Access to ICTs is the most significant factor in whether teachers use them and also Teachers' subject knowledge influences how ICTs are used .ICTs can aid teacher self-learning in subject matter. On-going teacher training and support is critical to the successful utilization of ICTs in education. Teacher professional development is a process, not an event. Successful teacher professional development models can be divided into three phases 1) pre-service, focusing initial preparation on pedagogy, subject mastery, management skills and use of various teaching tools (including ICTs); 2) in-service, including structured, face-to-face and distance learning opportunities, building upon pre-service training and directly relevant to teacher needs; and 3) on-going formal and informal pedagogical and technical support, enabled by ICTs, for teachers, targeting daily needs and challenges.

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