ICT IN TEACHER EDUCATION IN INDIA: STILL IN SEARCH OF ITS APPLICATION

By

GAURAV SINGH * GIRIJESH KUMAR **

* Sr. Lecturer, Rakshpal Bahadur Teachers Training Institute, Agarsen Park, Bareilly.
** Head, Faculty of Education and Allied Sciences, M.J.P. Rohilkhand University, Bareilly.

ABSTRACT

It is no longer possible to conceive of teacher education without ICTs. It is imperative for the teacher education institutions to wake up and reorganize their curriculum to accommodate the changing face of knowledge. This study conducted by the researcher in teacher education institutions related to availability and access of ICTs in these institutions during session 2008-09, brought forward the real scenario of ICT in teacher education institutions. For this study the researcher used a scale named "ICT Friendliness Scale" developed by Kumar and Singh (2008). Analysis indicates that there is not a single ICT facility, which is present in every teacher education institution. There is non-availability of facilities like Educational software pertaining to school subjects on CDs, Slide Projector, Networking in computer lab, Dial-up/ Broad band Internet Access, LCD Projector, Language Learning Software with Headphones, Electronic versions of common Encyclopedias and Electronic versions of common Encyclopedias in all the Government aided Teacher education Institutions sampled for the study.

Keywords: ICT, Teacher Education, B.Ed. Teacher Training Institutions.

INTRODUCTION

Of late, there has been a radical transformation of learning environments. These changes have generated new information sources and new learning processes, which have contributed to change the role of teachers. 'We are already witnessing some of the significant social and economic consequences of Information and Communications Technology (ICT) and its impact on education. It affects parents, children, and schools. Some parents become anxious if their children do not use computers because they believe that the computer is a powerful educational tool. They may fear that their children will fall behind those who use ICT or worry that their children are not being adequately prepared for the future' (Setzer & Monke, 1995).

Today a class room is different place from what is used to be. The black board and chalk is being supported by computers, television, internet etc. The teachers of future are to be trained in these technologies. It is no longer possible to conceive of teacher education without ICTs. It is imperative for the teacher education institutions to wake up and reorganize their curriculum to accommodate the changing face of knowledge. Bevernage et.al. (2009) rightly pointed out that, "ICTs in education are not transformative on their own. Transformation requires teachers who can use technology to improve student learning. The professional development of teacher educators in the area of ICT integration is essential. Unless teacher educators model effective use of technology in their own classes, it will not be possible to prepare a new generation of teachers who effectively use the new tools for teaching and learning." The infusion of ICTs into teacher education programme will help the future teachers cope up with the paradigm shift in learning. Teachers will only continue to develop their knowledge in ICT if their training meets their individual classroom needs (Lawson and Comber, 2000). Integration of ICTs in teacher training is the essential requirement of the day. It was shown that the use of ICT was limited by the teacher's expectations and understanding of the ICT resources (Cox and Marshall, 2007). It is when the teachers can see the utility of using ICT in their own courses they will be more motivated to use it (Fors, et.al. 2008). 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 (UNESCO, 2002). We are discussing on the issue since nineties, but nothing worthwhile has been noted on the ground of reality.

Before going through theoretical suggestions it seems necessary to understand the present situation in teacher education institutions. Present study conducted by the researcher in teacher education institutions related to availability and access of ICTs in these institutions during session 2008-09, brought forward the real scenario of ICT in teacher education institutions.

Statement of the Problem

The study may be covered under the research statement "To analyse the availability and access of ICTs in Teacher education Institutions affiliated to M.J.P. Rohilkhand University, Bareilly (INDIA)"

Objective of study

The major objective of the study was to analyze the teacher educators' perception regarding availability and assess of ICTs in B.Ed. Teacher Training Institutions. The study was aimed to analyse the:

- Present conditions of ICT facilities in teacher education institutions,
- Status of ICT enabledness among the teacher educators of these institutions,
- Willingness of faculty members to introduce the ICTs in teacher education.
- Place of ICTs in Curriculum of teacher education
- Institutions' friendliness towards ICTs inclusion in teaching learning process.

Tool for the Study

For this study the researcher used a scale named "ICT Friendliness Scale" developed by Kumar and Singh (2008). The scale comprises of 34 items in two parts. Part A of the scale was a checklist to judge the status of ICT infrastructure in Teacher education Institutions. Part B was a five point scale (always, very often, some-times, rarely and never) to understand the use of these facilities and ICT enabledness of Teacher Educators. The tool was developed and standardized by the author.

Reliability of the Tool

In research, the term reliability means "repeatability" or "consistency". A measure is considered reliable if it would give us the same result over and over again (assuming that what we are measuring isn't changing!). A test is reliable if it is self-consistent and provides similar scores from one occasion to another. It is unlikely any psychological measure will be 100% reliable; therefore estimating the reliability will allow us to assess the amount of inherent error. In psychological studies, researchers used various methods for calculating the reliability of the tools like split half method, equivalent or parallel form method, test – retest method and Kuder-Richardson method. In the current study, the reliability of the tool is calculated using test-retest method. The test-retest reliability coefficient of the tool is found 0.76, which is quite significant and implies that the tool is reliable.

Validity of the Tool

A test is valid if it measures what it seeks to measure. The concept of validity is fundamental to a research result. A result is internally valid if an appropriate methodology had been correct followed in order to yield that result. There are various types of validity types including Content validity, construct validity, concurrent validity, predictive validity etc. For the current tool, researcher established its content validity. The tool was send to 6 experts of educational technology. They were examined the test items in the tool. Their suggestions are included in the reframing of the tool, which helped the researcher to ensure the content validity of the tool in the form of item validity.

Sample for the Study

The sample was selected among faculty members of teacher education institutions affiliated of M.J.P. Rohilkhand University. Out of 10 Government aided and 30 Self-financing Institutions, every second institute was selected as sample after arranging them in alphabetical order. Consequently 5 Government-aided and 15 Self-financing Institutions were chosen for the study. 3 Teacher educators from every institution were taken as sample. Thus in Total 15 Faculty members of Government-aided and 45 Faculty

members from Self-financing Institutions were taken as sample.

Analysis and Interpretation of Data

To understand in a comprehensive manner data analysis has been done in two phases. In first phase the availability of ICTs has been analysed. The major equipments related to ICT are enlisted in the tool and their availability and number in the institutions was assessed. The findings are summarized in Table 1.

The table clearly indicates that there is acute scarcity of ICT facilities in teacher Education institutions. The Major findings can be summarized as:

- There is not a single ICT facility, which is present in every teacher education institution.
- There is non-availability of facilities like Educational software pertaining to school subjects on CDs, Slide Projector, Networking in computer lab, Dial-up/ Broad band Internet Access, LCD Projector, Language Learning Software with Headphones, Electronic versions of common Encyclopedias and Electronic versions of common Encyclopedias in all the Government aided Teacher education Institutions sampled for the study.
- In self-financing institutions, the situation is a bit better.

S. No.	Facility	Govt. Aided		Self-financing	
		Number	%	Number	%
1	PC Systems	1	20	7	46.7
2	Common printer (dot matrix and/or inkjet)	3	60	6	40.0
3	Educational software pertaining to school subjects on Cds	0	0	2	13.3
4	VC Player	2	40	2	13.3
5	TV/ LCD Screens	1	20	6	40.0
6	AM Radio-cum-Cassette Recorder	2	40	6	40.0
7	Audio/Video Cassettes	1	20	6	40.0
8	Over Head Projector	4	80	14	93.3
9	Slide Projector	0	0	2	13.3
10	Public Address System	3	60	5	33.3
11	Projection Screen	2	40	8	53.3
12	Scanner	1	20	8	53.3
13	Laser Printer	1	20	6	40.0
14	Networking in computer lab	0	0	2	13.3
15	DiaUp/ Broad band Internet Access	0	0	6	40.0
16	DVD/VCD Player	2	40	10	66.7
17	CD/ DVD Writer	1	20	12	80.0
18	LCD Projector	0	0	5	33.3
19	Language Learning Software with Headphones	0	0	1	6.7
20	Electronic versions of common Encyclopedias	0	0	2	13.3
21	Audio System	3	60	11	73.3
22	Camera (Film and/or Digital)	2	40	8	53.3
23	Video Camera (Cassette/Digital)	0	0	6	40.0

Table 1. Availability of ICTs in Teacher Training Institutions

The table is self-explanatory to show the situation of ICTs in the institutions.

It has been observed after analyzing the curriculum of B.Ed. course, that there is no practical or theoretical content addressed specifically to ICT and its applications. Only a chapter related to Audio-visual aids is present in syllabus of Educational Technology paper. There is no Project, assignment or practicum in addressing the applications of modern ICTs in teacher education.

The second part of the scale has the reflection of ICT enabledness of the teacher educators. The responses of Teacher educators are tabulated below:

On the analysis of Table 2, researcher found that;

- Among 60 teacher educators, only 27 are skilled in ICTs. (4 in Government-aided and 23 in Self-Financing Institutions)
- Only 32% teacher educators are using ICTs in their regular teaching learning process (All in self-financing Institutions). They are using it due to their own interest in applying ICTs for better understanding and training.
- About 67% teachers have never operated the instruments like LCD, Video Camera and Slide Projectors etc.
- 61% of the teachers are not skilled in basic computers applications like MS Word, Excel & Power point.
- 56 % of the faculty members don't have their email ID.
- 47% of them have never assessed Internet.
- Only 13 % are using LCD projectors. 36% of Teacher educators have not seen the LCD. Let alone using them.
- 78% of them have never used OHP in their teaching.
- 73% among the teacher educator have no idea about the establishment and software to be used in Language Laboratory.
- None of the faculty member was found skilled in packages like Statograph, Systate and SPSS.
- Only 14% among them are able to develop CAI packages.

The above mentioned facts are some glimpses of real situation of ICT in teacher education. The researchers hope

S.No	Facility	Govt. Aided					Self-financing				
		Always	Very offten	Sometimes	Rarely	Never	Always	Very offten	Sometimes	Rarely	Never
1	Are you feel friendly with computer for your teaching and learning?	0	4	0	1	10	4	6	5	3	27
2	Are you using internet for interacting with other people?	3	2	0	2	8	12	6	3	4	20
3	If yes, give your email ID.			Only 8 Answers Positive					Only 18 Answers Positive		
4	Are you able to operate the handycam, Digital camera?	0	0	1	2	12	2	8	2	5	28
5	Have you ever used LCD for your classroom presentations?	0	0	0	3	12	0	7	15	13	10
6	Are you using OHP in your regular class room practices?	0	0	2	0	13	0	4	6		34
7	Have you ever assessed language laboratory?	0	0	2	2	11	1	6	4	1	33
8	Have you ever worked of statistical softwares?	0	0	0	2	13	0	0	0	9	36
9	If yes, Name the softwares you used.			No Answer					No Answer		
10	Are you give training to trainee te to develop CAL packages by using softwares?	0	0	1	0	14	0	0	6	1	38
11	Do you rate yourself as a ICT skilled person?		4 Yes		11 No			23 Yes		22 No	

Table 2. ICT Enabledness of Teacher Educators

that situation is not very different at national level too. The point to be consider here is that, as per norms, every college is supposed to have a computer lab but the teacher educators have indicated that in most of the colleges, lab is for inspection purpose and not for regular use.

These findings show us the realities of ICTs in teacher education. A very interesting observation is that against the new U.G.C. curriculum, computer education has no place in the new curriculum of the University. This raises a question in our minds as to where we are going by not introducing these changes.

Challenges

Hargreaves (1999) points out "It is plain that if teachers do not acquire and display this capacity to redefine their skills for the task of teaching, and if they do not model in their own conduct the very qualities - flexibility, networking, creativity - that are now key outcomes for students, then the challenge of schooling in the next millennium will not be met." Although the possibilities for using ICT as a tool for teaching and learning in schools has increased in recent years, much empirical research evidence demonstrate that those possibilities are not being exploited by teachers (Willis & Mehlinger, 1996). Apple (1992) critically argues that the more the new technology transforms the classroom in its own image, the more technical logic will replace critical, political and ethical understanding by means of loss of educational value of technology. However, teachers need to be trained in following areas like

a) Personal skills in use of ICT,

b) Professional skills and competence in ICT, such as understanding the relevance of ICT in education.

Understanding the importance of ICT in teaching and learning, understanding how to plan ICT for teaching and learning across the curriculum, and managing ICT in the classroom are the key skills required among teacher educators (Altun, 1997). The Initial Teacher Education institutions are the places where those skills can be attained. Because, an individual could attend a computer class from a local college or could attend an ICT workshop in a conference, but neither of these would familiarize him/her with how to use ICT for teaching (Maeers et.al, 1999). Therefore, educating teachers in effective use of ICT in the classroom needs to be started from the pre-service teacher education phase.

The teacher educators are not getting trained properly. We cannot introduce the ICTs in teacher education without full interest and involvement of teacher educators. There are few misconceptions in the teacher education community for using these technologies:

- The ICTs can be used only in technological subjects.
- Through teaching the ICTs the syllabus cannot be

completed in time.

- It is not easy to teach through ICTs for senior teachers.
- Developing ICT laboratory is a difficult task.

But in our opinion all these are the part of our defense mechanism. In the institutions, where these practices are going on effectively, there is no such problem. Teacher educators are enjoying these practices quite comfortably. Our mindset must be changed. We should come forward to keep pace with the changing world. Otherwise this noble profession will lag behind several miles from other disciplines. We should adopt and use all the emerging technological innovations. A teacher educator can teach all the subjects in the syllabus of teacher trainees. This is not a hypothetical statement, in many institutions everything is in practice.

The important task for teacher educators is to train the future teachers in ICTs. To train them in these technologies there is an important task on the part of educational planners and policy implementers. There is no compulsory or optional paper in the syllabus of teacher training curriculum dealing effectively with ICT. There should be a computer laboratory/ICT laboratory in every teacher education institution but there is no provision of any activity related to these laboratories in the curriculum of many universities. In some universities it has been introduced as a teaching subject but is of no use for a large number of trainee teachers.

If the planners of teacher education thought that their duty is only to suggest it in curriculum frameworks, then it might be wrong. They cannot ignore their responsibility on implementation part. There should be some thing concrete on the grounds of reality.

Suggestion

Curriculum framework for teacher education (NCTE, 2006 & 2009) are clearly indicating the importance of ICTs in teacher education but we are very fast in planning and too slow in implementation. The teacher's role in a classroom shows a great variation, such as a central leading person, an advisor, a mentor, a planner, a technician, a link between the student and the computer, an educator or a combined technician and educator (Jedeskog, 2000). Teachers also realize that not only the method of teaching but also the content of teaching will be affected by using ICT in the classroom. ICT is changing the way in which we teach the important influence of the teacher who decides: how the ICT resources are chosen, how they are used in schools and the classroom and how the pupils interact with the materials. The teachers of future should be trained in all these innovative practices and there should be clear cut provision for ICTs in the curriculum of teacher education.

ICT training should be the priority, as Carlson (2002) argued, success in ensuring that teachers acquire the skills and knowledge they need to use technology effectively opens the door to all kinds of new educational opportunities for both teachers and students, and downstream economic opportunities for graduating youth and their countries. This success is the key to participation in the global knowledge economy. Accordingly, teacher professional development in the use and application of technology must be given the priority and resources it deserves, while still maintaining a constructively critical eye on its costs and methodologies.

Teacher education programs need to prepare and support teachers in the appropriate choices and uses of ICT environments. Furthermore, teachers' fundamental beliefs about how to teach their subject and how specific ICT resources can enhance and fundamentally change the way in which their students learn, need to be challenged. (Cox and Marshall, 2007).

The institutions should be equipped with the ICT facilities. There should be at least one of the faculty members trained in the ICTs. It should be compulsory to attend atleast one ICT training programme for every teacher educator before further promotion or increment as possible.

The provision of ICT access and an educationally sound ICT training programme can only have the required impact if the university fully supports this major transformation. Respective planners need to look carefully into the necessary pre-requisites and consequences of ICT integration at the level of curriculum development, the examination system and teacher's incentives among others. As the first institutions are getting ready to offer comprehensive ICT teacher training based on educational principles and targeting subject teachers, the government

can support the existing and upcoming professional development initiatives. A clear incentive package could make it attractive for teachers to undertake similar training. (Bevernage, 2009)

At last the researchers want to conclude with the comment that there is an urgent need to think on the issues related to the implementation of ICTs in teacher training institutions. The study is not completed by organizing discussions and seminars; it should be a beginning in the direction of ICTs equipped teacher education. These are the areas, in which urgent overhauling is required. Curriculum should be more practical and the introduction of training of trainee teachers in ICT skills should be made compulsory. The ICT laboratory, Computer laboratory and Language laboratory should not be only for ornamental purpose. Content and practicum in these laboratories should be the part of teacher training programmes as well as of teacher educators training curriculum. Based on researchers opinion, we cannot face with the future world without the ICTs and if we still remain in a process of thinking, the time will move forward leaving us behind.

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ABOUT THE AUTHORS

Dr. Gaurav Singh did his M.Sc. in Physical Chemistry from Faculty of Education and Allied Sciences, M. J. P. Rohilkhand University, Bareilly. He qualified UGC-NET in the same year and started his career as a Lecturer at Rakshpal Bahadur Teachers Training Institute, Bareilly. He has completed his Ph.D. under the guidance of Prof. Girijesh Kumar on Self-financing Teacher Education. He has attended more than 35 seminars/ conferences and symposium and his thirteen research articles/ papers have been published in National/International Journals so far. He also co-chaired various sessions in National/ International seminars organized by IATE, AIATE, AES, AIAER etc. He has reviewed various articles for Journals like Prospects in Education, Current Education International and is on Editorial Board of Journal of Business Solutions, an International Peer Reviewed Biannual Journal. He is an innovative lecturer and during his active participation Rakshpal Bahadur Teachers Training Institute, Bareilly accredited B+ by NAAC and became the first self-financing institution attaining this status in the state.

Prof. Girijesh Kumar did his M.Sc. in Chemistry and M.Ed. from IASE, Meerut University, Meerut. After doing his M.Ed., He started his Career as Lecturer in Dept. of Education, Hindu college, Moradabad. He completed his Ph.D. under the Guidance of learned Prof. M. K. Raina in 1978. At Hindu College, he taught B.Ed. and M.Ed. classes. He has published more than 70 research papers in various International and National Journals. He has chaired a number of seminars, conferences, workshops and also conducted various UGC refresher courses. Presently, he is officiating as Head, Department of Education, Faculty of Education and Allied Sciences, M.J.P. Rohilkhand University, Bareilly. He is a member of R.D.C. and board of studies in various universities. Under his headship Faculty of Education and Allied Sciences, M.J.P. Rohilkhand University, Bareilly accredited A+ by NAAC. He has visited various universities as a member and Chairman of NAAC peer team.