



THE ROLE OF ICT IN TEACHER EDUCATION

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ABSTRACT

One of the greatest challenges facing teacher education today is preparing good quality teachers for an ever-changing world. Teacher trainees are the key components in any system of teacher education. Unless they are trained we cannot expect any qualitative change to come out of the system of teacher education. Diagnosis and remediation are also basic needs of curriculum transaction. An attempt has been made in this paper to develop an ICT training module and test its effectiveness in teacher education. The study reveals that there is no significant difference between the theoretical and application awareness in the concept of ICT among male and female teacher trainees.

KEYWORDS: *ICT, Teacher Education.*

INTRODUCTION

In the modern age, information and communication technology has influenced all aspects of human life. Teacher education has also been influenced by the ICT. Now ICT has become an integral part of our lives. Over the past twenty five years, the use of ICT has fundamentally changed the practices and procedures in the field of banking, tourism, share market, engineering, business, and post office. ICT is one of the major contemporary factors shaping the global economy and producing rapid changes in society.

ICT is a powerful tool for problem solving, conceptual development and critical thinking that helps to make the learning process much easier for the teacher trainees. Owing to knowledge explosion and tremendously fast changing ICT, the teachers sometimes find it rather difficult to cope with the new intellectual challenges being thrown up by the changed global and local context. Therefore, updating the knowledge of ICT is the need of the hour.

Even though teachers may have mastered the traditional pedagogies in teaching their students, the changing world dictates that these are no longer sufficient. The teacher educators must acquire new knowledge of ICT before they can prepare their teacher trainees to meet the demands and challenges of the 21st century.

Information & Communication Technology has a great potential to contribute positively towards knowledge dissemination, effective learning and the development of more efficient education service.

Today's classroom teachers must be prepared to provide technology-supported learning opportunities to their students. Because that is the need of the knowledge-based economy of today. Being prepared to use technology, and knowing how that technology can support student learning, must be made integral to every teacher's professional repertoire.

Nowadays, teaching is becoming one of the most challenging professions in India where knowledge is expanding rapidly and much of it is available to students as well teachers at any time and anywhere. As teacher education is primarily directed towards preparing teachers, the quality of teacher education relies on the teacher trainee's abilities and skills. Teacher educators have to accept the demands of modern world and modify their old concepts and methods according to the needs of learners. Otherwise the teachers will become out-dated in the coming future and it will deteriorate the quality of teacher education.

REVIEW OF RELATED LITERATURE

Das (2007) remarked that information and communication technology is an important instrument, which can transfer the present isolated, teachercentred, book-centred learning environment into a rich student-centred environment. This new learning environment developed by ICT is called Interactive Learning Environment. According to Jaiswal (2011) the teacher education system empowered by ICT-driven infrastructure can have a great opportunity to come up to the centre stage and



ensure academic excellence, quality instruction and leadership in a knowledge-based society.

A number of studies have been undertaken by the researchers in the field of teacher education with ICT. Swamy (2010) undertook a study on, Internet awareness and competence among high school students and teachers. He found that the Mahiti Sindhu project had significantly enhanced the awareness of Internet among the teachers who were involved with the project and the training programme was able to create awareness regarding Internet competence in the high school students. Muthuchamy (2010) conducted a study on the higher secondary students' perception towards ICT. He found that students studying in rural and urban schools differed significantly in their perceptions towards ICT. Goel (2006) conducted a study on the use of Internet in teacher education and found that a sizeable number of teacher trainees make use of Internet for email, surfing and research.

NEED AND SIGNIFICANCE OF ICT IN TEACHER EDUCATION

New technologies have provided new possibilities for the teaching profession. However, teacher educators and teacher trainees have to learn how to use these new technologies in the classroom situations. Most of the teacher education institutions are facing difficulties like shortage of ICT trained qualified teacher educators, weak curricula, lack of ICT equipment etc. Perhaps one of the greatest challenges facing teacher education today concerns the preparation of good quality teachers capable of using ICT effectively. Unless and until they are trained we cannot expect any qualitative changes in teaching. In this context, the investigator developed an ICT training module and studied its effectiveness in the teacher education system.

OBJECTIVES OF THE STUDY

The study was conducted to achieve the following objectives:

1. To compare the level of awareness about ICT among male and female teacher trainees,
2. To study the internet competencies of the teacher trainees,

3. To train them in the use of ICT and internet for browsing literature and,
4. To study the effectiveness of ICT module by the teacher trainees.

HYPOTHESIS

Keeping in view the objectives of the study, the following hypothesis was formulated for the present study:

H1: There is no significant difference between the awareness level regarding ICT among male and female teacher trainees

METHODOLOGY

All 35 teacher trainees of a Post Graduate Department of Education were selected for the present study. An instructional ICT training module was developed for the teacher trainees. The duration of the programme was 120 days including follow-up measures like group activities; cyber café visits, and display flow charts on the components of ICT related to teacher education.

Teacher trainees were trained to a) prepare power point slides in their subjects b) use power point slides and LCD projector for teaching the subjects c) use Internet for chatting, email and video conferencing d) browse the related research literature through Internet and e) prepare graphs by using MS Excel etc. They were also given theoretical and practical exposure in the above-mentioned areas. A single group design was employed for the present study.

TOOLS AND TECHNIQUES EMPLOYED

A questionnaire and achievement test was constructed on the use of ICT and Internet for teacher trainees. An interview schedule was used to interview the faculty members. An evaluation of the effectiveness of ICT module was done after 120 days. For analysis of data, the investigator used the test of significance of the difference between means and percentage analysis.



ANALYSIS AND INTERPRETATION OF DATA

Table 1
Comparison of Scores on Level of Awareness about ICT

| Variables | Number N | Mean M | Pooled SD | SE D | t | Significance |
|-------------------------|----------|--------|-----------|-------|-------|-----------------|
| Male Teacher Trainees | 13 | 7 | 1.817 | 0.727 | 1.375 | Not Significant |
| Female Teacher Trainees | 12 | 8 | | | | |

From the above table, the value of t with 23 degrees of freedom at 0.05 level of significance is 1.37 which is quite smaller than the table value. Hence, the null hypothesis H₀ is accepted at 0.05 level

of significance. Therefore, there is no 1 significant difference between the theoretical and application awareness in the concept of ICT among male and female teacher trainees.

Table 2
Use of ICT in Teacher Education

| S.No | Questions | Before Training Frequency | | After Training Frequency | |
|------|--|---------------------------|---------|--------------------------|---------|
| | | Yes | No | Yes | No |
| 1 | 1 Have you created own email Id? | 05(20%) | 20(80%) | 25(100%) | 00(0%) |
| 2 | Do you know search engines? | 09(36%) | 16(64%) | 25(100%) | 00(0%) |
| 3 | Are you chatting on internet? | 04(16%) | 21(84%) | 10(40%) | 15(60%) |
| 4 | Do you know how to make power point slides for presentation? | 06(24%) | 19(76%) | 18(72%) | 07(28%) |
| 5 | Do you browse the research literature through internet? | 03(12%) | 22(88%) | 16(64%) | 09(36%) |
| | Can you prepare graphs by using MS Excel? | 05(20%) | 20(80%) | 10(40%) | 15(60%) |
| | Have you used LCD projector for lesson plan? | 03(12%) | 22(88%) | 20(80%) | 05(20%) |

From Table 2, it is observed that significant changes were found after implementing ICT training module by the teacher trainees in the teacher education programme. 100% of the teacher trainees

were found to have created their email account and know about different search engines. Teacher trainees also started making PowerPoint presentations and using the LCD projector.



Table 3
Extent of Internet Used by the Teacher Trainees

| S.No. | Place | Before Training Frequency | After Training Frequency |
|-------|------------|---------------------------|--------------------------|
| 1 | Home | 04 (16%) | 07(28%) |
| 2 | University | 03 (12%) | 12(48%) |
| 3 | Cyber Café | 11 (44%) | 06(24%) |
| 4 | Nowhere | 07 (28%) | 00(00%) |

It is evident from Table 3 that 28 % of the teacher trainees do surfing at Home, 48 % at university and 20% at cyber café. A large majority of the teacher trainees use Internet at the university.

Table 4
Time Spent on Internet per Week

| S.No | Time | Before Training Frequency | After Training Frequency |
|------|-------------------|---------------------------|--------------------------|
| 1 | 0 hour | 07 (28%) | 00 (00%) |
| 2 | 1 hour | 02 (08%) | 01 (04%) |
| 3 | 1-2 hours | 04 (16%) | 03 (12%) |
| 4 | 3-4 hours | 07 (28%) | 10 (40%) ¹ |
| 5 | 5-7 hours | 04 (16%) | 08 (32%) |
| 6 | More than 8 hours | 01 (04%) | 03 (12%) |
| | Total | 25 (100%) | 25 (100%) |

From the above table it is clear that 40 % teacher trainees used the Internet for 3-4 hours per week, 32 % used it for 5-7 hours per week while 12 % used it for more than 8 hours. All teacher trainees used Internet for at least one hour a day after completing ICT training module.

Table 5
Use of ICT for Designing Seminars

| S.No. | Use | Before Training Frequency | After Training Frequency |
|-------|--------------|---------------------------|--------------------------|
| 1 | Often | 03 (12%) | 17 (68%) |
| 2 | Sometimes | 02 (08%) | 05 (20%) |
| 3 | Occasionally | 01 (04%) | 03 (12%) |
| 4 | Never | 19 (76%) | 00 (00%) |
| 5 | Total | 25 (100%) | 25(100%) |

From Table 5 it can be observed that 68 % of the trainees use ICT often for seminar designing and delivery. This shows that training in the use of ICT plays a major role in enabling teachers to use and adopt technology in day-today teaching learning process.



Table 6
Use of E-mail

| S.No. | Time | Before Training Frequency | After Training Frequency |
|-------|--------|---------------------------|--------------------------|
| 1 | Rarely | 12 (48%) | 00 (00%) |
| 2 | Often | 06 (24%) | 25 (100%) |
| 3 | Never | 07 (28%) | 00 (00%) |
| 4 | Total | 25 (100%) | 25 (100%) |

From the above table it can be seen that significant changes were found in the trainees email habits. 100% trainees were found to check their email regularly after under going ICT training module.

1. Significant changes were also found in their email habits. All teacher trainees were found to check their email regularly and they started submission of assignments and seminars via email.

In many ways, email has made my life easier. It allows me to:

- Contact people all over the world for free (or inexpensively)
- Communicate with more than one person at a time
- Document interactions (e.g. the highly prized CYA paper-trail)
- Leave messages any time of day without bothering people

It was only when people started using it in alternative ways that things started to get messy, really messy. Instead of looking for a different model email kept evolving to meet new demands and expectations such as:

- Working collaboratively
- Sending attachments
- Keeping a conversation together for multiple people(e.g. thread)
- Searching capabilities
- Automating actions with rules
- Integrating calendars and appointments, etc.

2. No significant differences were found to exist between the awareness regarding ICT of male and female teacher trainees.

3. After implementing the ICT training module, significant changes were found among teacher trainees. A large number of trainees were found to use ICT and Internet for their seminars, assignments, and review of related literature.

4. 68% of the trainees were found to use ICT for designing and delivering seminars.

5. 28% of the trainees were found to do surfing at home, 48% of them do at university, while 20% surf at cyber cafés.

6. A sizeable number of the trainees (about 40%) use Internet for 3- 4 hours per week, 32% of them use it for 5-7 hours per week and 12% of them use the Internet for more than 8 hours in a week.

SUGGESTIONS

On the basis of above conclusions and discussion with faculty members, the following suggestions can be drawn for policy makers:

1. Government and Managements should support teacher education institutes by giving more financial assistance to buy ICT equipment.
2. ICT allows students to monitor and manage their own learning, think critically and creatively, solve simulated real-world problems, work collaboratively, engage in ethical decision-making, and adopt a global perspective towards issues and ideas.
3. All Universities should introduce uniform ICT based curriculum.
4. All B.Ed. colleges need to establish computer labs with Internet facilities.
5. A list of ICT based activities might be cited in the curriculum of teacher education.
6. Printed ICT based practice lesson books along with specific instructions for teacher trainees need to be developed.
7. There is a need to develop software in regional languages along with English for use in different regions of the country.

ICT has revolutionised the entire concept of education, teaching-learning process, and research activities by offering new opportunities and challenges in creation and dissemination of information by web-based education. It is really a challenging task to strengthen ICT in teacher education.

CONCLUSIONS

The findings in this study present technology education in the pre-service program as slow to change and lagging behind the advancements in the field. It takes time to learn and appropriate ICT, so having only one semester ICT literacy course is not advisable. Based on the results of prior studies done in the same setting and the results of this study, it would be best to offer the ICT literacy course in two semesters and on two levels. While the introductory course would be ICT skills-based, its sequel would cover ICT pedagogical content knowledge training.

Information and communication technologies (ICTs) can significantly enhance poor people's



human and social capabilities and have a positive impact on their well-being.

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