

INTEGRATING ICT IN TEACHER EDUCATION

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The aim of this study is to develop a suitable Information and Communication Technology (ICT) training module and evaluate its effectiveness in teacher education. 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.

Das (2007) remarked that information and communication technology is an

important instrument, which can transfer the present isolated, teacher-centred, 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.

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

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 25 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 90 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 90 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 H_1 is accepted at 0.05 level of significance. Therefore, there is no 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	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%)
6	Can you prepare graphs by using MS Excel?	05(20%)	20(80%)	10(40%)	15(60%)
7	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%)
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%)
	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-to-day 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%)
	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.

CONCLUSIONS

1. No significant differences were found to exist between the awareness regarding ICT of male and female teacher trainees.
2. 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.
3. 28% of the trainees were found to do surfing at home, 48% of them do at university, while 20% surf at cyber cafés.
4. 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.
5. 68% of the trainees were found to use ICT for designing and delivering seminars.
6. 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.

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. All Universities should introduce uniform ICT based curriculum.
3. All B.Ed. colleges need to establish computer labs with Internet facilities.
4. A list of ICT based activities might be cited in the curriculum of teacher education.
5. Printed ICT based practice lesson books along with specific instructions for teacher trainees need to be developed.
6. 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.

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