The present study is a kind of survey about teacher educators competencies and their Information and communication technology usage in their courses. In order to better facilitate professional development for teacher educators and better prepare tomorrow’s teacher educators it is necessary to effectively and successfully integrate ICTs in their classrooms and therefore it has become necessary to examine teacher educators attitude towards ICT competencies and their uses of ICT in their respective courses being taught. The objectives of the present study ids to find out whether there is any significant difference in the attitude between male and female, graduate and post graduate, trained and untrained, rural and urban teacher educators towards information and communication technology competencies and its usage. A random sampling method was taken and a sample of hundred teacher educators was taken from four different teacher training colleges of Aligarh district. A self-constructed questionnaire was developed by the researcher and was used for the collection of data. The results of the findings indicate that most of the teacher educators expressed positive attitude about integration of ICT into teacher education programs as well as a positive and healthy attitude towards ICT competencies and its usage. The findings of the results revealed that the attitude of the teacher educators towards competency and usage in ICT is not affected by their gender, qualification and ICT training but it is affected by locality. The teacher educators who are belonging to rural and urban areas have been found to have significant difference in their attitude towards ICT competency and usage. Owing to
the 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. This is probably one of the main reasons for the inadequate academic, professional and pedagogic preparation and insufficient level of knowledge and skills of the faculty. The teacher educators therefore need to acquire new knowledge and reliable and authentic information about the use and implementation of ICTs in the teaching learning process.

1. INTRODUCTION

ICTs stand for Information and Communication Technologies and are defined, as a “diverse set of technological tools and resources used to communicate, and to create disseminate, store and manage information. These technologies include computers, the Internet, broadcasting technologies and telephony (Blurton).”

The convergence of ICTs has turned the whole world into a global village, making it possible to foster interaction with people in remote geographical locations of the world at previously unimaginable speed. This phenomenon has also shortened the turnaround period of knowledge such that “knowledge becomes obsolete almost as soon as it is acquired or learnt”. The result of this development is that teachers are now challenged to be at the cutting edge of knowledge production, modification and application. This view has been further emphasized by the ubiquitous forces of globalization that has made it necessary to interact with diverse socio-cultural practices, sometimes at the expense of local influences. “Teacher education institutions need to assume a leadership role, in the transformation of education or be left behind in the swirl of rapid technological change” (UNESCO, 2003). “Information communication technologies (ICTs) have the potential to enhance access, quality and effectiveness in education in general and to enable the development of more and better teachers in particular” (UNESCO, 2003). Computer hardware has now become available to an increasing number of schools; more attention needs to be given to the capacity building of the key transformers, in this process, namely teachers. One can say that the teachers’ education in India is on the brink of major transformation (Rajput, Walia, 2004). ICTs are one of the major contemporary factors shaping the global economy and producing rapid changes in society. ICT has become an important part of most organizations and business in the present times (Zhang and Aikman, 2007) and it will play a dominant role in education for the coming generation too (Yelland, 2011). They have fundamentally changed the way people learn, communicate and do business. However the use of ICT as a medium has not yet taken momentum in India. The availability of resources is major obstacle to the wide spread integration of ICTs in education and teacher education in particular.

The present age is the age of information and technology. Several studies have pointed out the necessities of providing opportunities for students to learn and operate in an information age or else it would become very difficult for them to sustain in the work
place of today’s society (Yelland, 2011). This requires teachers, key transformers, to be well equipped with the latest technology so as to enable students to prepare them for future. ICT can help students and teachers in developing the competencies required for the twenty first century. ICT can play various roles in learning and teaching processes by enhancing efficiency. Bransford et al (2010) had pointed out ICT potential to enhance student achievement and teacher learning. Use of ICT can play vital role in the development of student skills, motivation and knowledge (Grabe and Grabe, 2011).

1.1 Information and Communication Technology in Classroom

When used appropriately, ICTs—especially computers and Internet technologies—enable new ways of teaching and learning rather simply allow teachers and students to do what they have done before in better way. These new ways of teaching and learn in g are underpinned by constructive theories of learning and constitute a shift from a teacher-centered pedagogy--- in its worst from characterized by memorization and rote learning --- to one that is learner-centered.

ICT provides several types of learning that are: 1.) Active Learning: ICT-enhanced learning mobilizes tools for examination, calculation and analysis of information, thus providing a platform for student inquiry, analysis and construction of new information. Learners therefore learn as they do and, whenever appropriate, work on real-life problems in-depth, making learning less abstract and more relevant to the learner’s life situation. In this way, and in contrast to memory based or rote learning, ICT-enhanced learning promotes increased learner engagement. ICT-enhanced learning is also ‘just-in-time’ learning in which learners can choose what to learn when they need to learn it. 2.) Collaborative Learning: ICT-supported learning encourages interaction and cooperation among students, teachers and experts regardless of where they are. Apart from modeling real-world interactions, ICT-supported learning provides learners the opportunity to work with people from different cultures, thereby helping to enhance learners’ teaming and communicative skills as well as their global awareness. It models learning done through the learner’s lifetime by expanding the learning space to include not just peers but also mentors and experts from different fields. 3.) Creative Learning: ICT-supported learning promotes the manipulation of existing information and the creation of real-world products rather than the regurgitation of received information. 4.) Integrative Learning: ICT-enhanced learning promotes a thematic integrative approach to teaching and learning. This approach eliminates the artificial separation between the different disciplines and between theory and practice that characterizes the traditional classroom approach. 5.) Evaluative Learning: ICT-enhanced learning is student-directed and diagnostic. Unlike static, text-or print-based educational technologies, ICT-enhanced learning organizes that there are different learning pathways and many different articulations of knowledge. ICTs allow learners to explore and discover rather than merely listen and remember.

1.2 ICT Integration in Teacher Education Programmes
In almost all sectors of education, the role of the teachers is changing from being not only a transmitter of knowledge but also that of facilitator of the teaching-learning process owing to the onset of information and communication technology (ICT). New applications of technology and enhanced accessibility to it are introducing new possibilities of teaching and learning. The traditional boundaries of the classroom are giving way to virtual learning and online courses. All these developments have profound impact on teacher education programmes and processes.

After 1980s, ICT have become an indispensable source of teaching and learning process. Initially, ICT issues quickly moved from instituting special programs for preparing individuals to become ICT specialists in schools and then infusing ICT into all aspects of teacher preparation. With the above-mentioned consequences, many action plans were developed at National and International levels, as well as investments for ICT in teacher education. Most of the teacher education programs have been redesigning their curricula in order for the preparation of prospective teacher educators, so that they become competent users of new technologies when they become teachers (Glenn, 2002; Gotkas 2009).

In 2008, parallel to the International practices, Higher Education Council (HEC) developed new teacher education curricula for schools of teacher education, and ICT has been included in the new teacher education curricula. The main purpose of ‘Computer’ course is to help prospective teachers’ process basic computer skills on commonly used computer applications (Gotkas, Yildirim, & Yildirim, 2009).

The integration of ICT into these courses, by the teacher educators who offer the new courses in teacher education programs has several important roles. By integrating ICT into these courses, the teacher educators can enhance the effectiveness of the courses and become role models for the prospective teachers. In the literature, good role models were recommended for prospective teachers to observe appropriate modeling throughout their undergraduate process (Kariuki, Franklin & Duran, 2010; Yildirim, 2009).

Teacher educators need to complement their content and pedagogy expertise by utilizing online facilities. Use of ICT effectively requires a change in classroom practice rather than mere acquisition of technical skills. Teachers need to familiarize themselves with possible approaches and application in the use of ICT, the facilitation of teaching and learning. These technologies along with overhead projector and computer projections have the potential to make teaching-learning and training processes more efficient and cost-effective. It has opened up new possibilities of reaching out to the still un-reached disadvantaged groups and children with special needs.

In this context, for the preparation of better teacher educators so that they are able to integrate ICT into their classrooms (Bai &Ertmer, 2007; Vannatta & O’Bannon, 2011; Willis & Tucker, 2012), to better facilitate professional development for teacher educators and better prepare tomorrow’s teachers educators to integrate ICT effectively and successfully in their classrooms, it is necessary to examine teacher educators attitude towards ICT competencies and their uses of ICT in their courses of teaching. Therefore,
there is a need to examine current status of the teacher educators in regard to aforementioned issues.

Consequently the present study addressed the following research questions:

i.) What are the teacher educators perceived ICT competencies?
ii.) To what extent do teacher educators use ICT in their courses?

2. REVIEW OF RELATED LITERATURE

Cepni et al (2006) pointed out the study on effects of Computer Assisted Instruction Material related to photosynthesis topic on student cognitive development misconceptions and attitudes. This study result showed that using CAIM in teacher photosynthesis topic was very effective for students to reach comprehension and application levels of cognitive domain.

Jasmine Kumar and et al (2007), conducted a study on “Professional competency of Teachers and Teacher Educators in relation to their ICT usage” with the sample of 30 teacher educators and 50 teachers from Government, Government-aided and aided minority institutions in Chennai city, Tamil Nadu reported that professional competency and ICT usage are significantly related.

Angel, R (2007), conducted a study on, “Infusing ICT in teaching learning Process: A Reflection” in places namely Mysore, Pondicherry and Tumkur. It was hypothesized that Computer Assisted Instruction approach would be more effective than traditional approach on acquisition and retention of knowledge and it would be an effective reinforcement tool. The students undergoing the CAI approach has found to score more in knowledge acquisition test and in the test conducted after reinforcement than the students undergoing traditional approach. The mean scores reveal that the students under CAI approach has scored more than the students under traditional approach in the delayed test conducted after a month. Thus infusing ICT in teaching learning process enhances the teaching and learning which in turn provides quality education.

Illayaperumal (2007) conducted a study on “Perception of student teachers towards the role of technology in education for Sustainable Development”, with the sample of 100 student teachers (50 B.Ed and 50 D.T.Ed) selected from the Union territory of Puducherry. He concluded that the perceptions of student teachers are above average. Also a significant difference is observed between groups regarding locality, type of selection and community. Therefore it is necessary form our future teachers to have the knowledge and understanding of the role of ICT in Sustainable Development.

Gulbahar, Yashmin and Guven (2009 ), has made a study on, “A survey on ICT usage and perceptions of Social Studies teachers in Turkey” with the sample of 326 social studies teachers selected from the primary schools located in Turkey. They reported that although teachers are willing to use ICT resources and are aware of the existing potential they are facing problem in relation to accessibility to ICT resources and lack of in-service training opportunities.
gotkas, c & yildirim (2009) has made a study on “teacher educators’ ict competencies and usage” with 115 teacher educators in 18 schools of teacher education (ste) and through interview with 60 teacher educators in 03 ste from the capital city ankara, turkey. they reported that most of the participants expressed positive perceptions about the integration of ict into teacher education programs.

3. significance of the present study

To better facilitate professional development for teacher educators and better prepare tomorrow’s teacher to integrate information and communication technologies (ict}s) effectively and successfully in their classrooms, it is necessary to examine teacher educators ict competencies and their uses of ict in their courses. the study abs the following potential benefits. in the first place, it informs teachers’ readiness to use ict. Secondly, teachers’ experiences of using ict shed light on proper integration of ict in teaching and learning, and in turn, these experiences help to determine teachers’ professional development needs for proper cit integration in the classrooms. finally, it informs teacher preparation colleges and educational technology curriculum developers on the actual use of ict in context. it is from such contextual uses of ict, the concerned parties can improve their programmes (gotkas & yildirim, 2009).

4. statement of the research problem

This research study examined the teacher educators’ perceived ict competencies and their ict usage in their courses. the topic of research is, “teacher educators attitude towards information and communication technology competencies and usage: an empirical study”.

5. objectives of the study

The present study has undertaken following objectives:

I. To study the difference between male and female teacher educators attitude towards competency and usage in ict.

II. To study the difference in attitude between urban and rural teacher educators towards ict competency and their usage.

III. To study the difference between post graduate and graduate teacher educators’ attitude towards competency and usage in ict.

IV. To study the difference in attitude in teacher educators towards ict competency and usage on the basis of their training in ict.

6. hypotheses

The following hypotheses have been constructed in order to carry out the present research study:

I. There is no significant difference between male and female teacher educators’ attitude towards their competency and usage in ict
II. There is no significant difference between urban and rural teacher educators attitude towards their competency and usage in ICT.

III. There is no significant difference between post-graduate and graduate teacher educators’ attitude towards their competency and usage in ICT.

IV. There is no significant difference in attitude between ICT trained and ICT untrained teacher educators in their competency and usage in ICT.

7. METHODOLOGY OF THE STUDY

The technique of random sampling was used for data collection and the data was collected from a sample of hundred teacher educators from four different teacher training colleges of Aligarh district.

I. Tools of the Study

Data was collected with the help of three tools which were developed by the investigator himself. The tools used for data collection were:

a. ICT usage survey tool
b. ICT competencies scale
c. Biographical information blank

The Information and Communication Technology usage survey and ICT competency scale was developed by the researcher and was used to collect data in order to do the present research study. The ICT usage survey was composed in three parts. The first part of the survey consisted of twenty four items regarding teacher educators. The first part of the survey consisted of twenty four items regarding teacher educators’ software use, as well as other instructional tools and materials usage in the teaching-learning process. The purpose of this part was to find out the self-expertise level of the teacher educators. The second part consisted of nine items about preferences for professional development on information gathering and support. The third and final part consisted of eight items about factors that encourage teacher educators’ usage of technology. The perceived ICT competencies were examined using the ICT competency scale in the form of a questionnaire. It consisted of twenty four items. In the biographical information blank the participants filled in their personal data like their post of teaching, their age, gender, total teaching experience and their qualifications etc. The participants rated their levels of agreement in the questionnaire statement by using a five-point Likert type scale.

II. Statistical Techniques Used

The statistical techniques that were used for the analysis of the data are: Mean, Standard Deviation and ‘t’ ratio.

8. RESULTS AND DISCUSSION

Hypothesis 1: There is no significant difference between male and female teacher educators’ attitude towards their competency and usage in ICT.
Table 1: Attitude of Teacher educators towards competency and usage in ICT in relation to gender

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Male</td>
<td>40</td>
<td>207.77</td>
<td>25.02</td>
<td>1.52</td>
<td>Not Significant*</td>
</tr>
<tr>
<td>2.</td>
<td>Female</td>
<td>60</td>
<td>200.34</td>
<td>21.98</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Not significant at 0.05 level

The table 1 reveals that t-ratio between mean scores of male and female teacher educators has been found to be 1.52, which is not significant at 0.05 level. So, there is no significant difference between male and female teacher educators in their attitude towards usage and competency in ICT. The null hypothesis is accepted.

Hypothesis 2: There is no significant difference between urban and rural teacher educator’s attitude towards their competency and usage in ICT.

Table 2: Attitude of Teacher educators towards competency and usage in ICT in relation to locality

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Locality</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Urban</td>
<td>85</td>
<td>204.86</td>
<td>24.34</td>
<td>2.24</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>Rural</td>
<td>15</td>
<td>194.47</td>
<td>14.77</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at 0.05 level

The table 2 shows that the t-ratio between mean scores of urban and rural teacher educators has been found to be 2.24, which is significant at 0.05 level. So there is significant difference between urban and rural teacher educators in their usage and competency in ICT. The null hypothesis is rejected.

Hypothesis 3: There is no significant difference between post-graduate and graduate teacher educators’ attitude towards their competency and usage in ICT.

Table 3: Attitude of Teacher educators towards competency and usage in ICT in relation to qualification

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Qualification</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Post Graduate</td>
<td>35</td>
<td>204.71</td>
<td>21.82</td>
<td>0.45</td>
<td>Not Significant*</td>
</tr>
<tr>
<td>2.</td>
<td>Graduate</td>
<td>65</td>
<td>202.55</td>
<td>24.36</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Not Significant at 0.05 level

The table 3 reveals that the t-ratio between mean scores of post graduate and graduate teacher educators’ has been found to be 0.45, which is not significant at 0.05 level. So, there is no significant difference between post graduate and graduate teacher educators in their attitude towards their competency and usage in ICT. The null hypothesis is accepted.

Hypothesis 4: There is no significant difference between ICT trained and ICT untrained teacher educators in their attitude towards their competency and usage in ICT.

Table 4: Attitude of Teacher educators towards competency and usage in ICT in relation to their training in ICT

<table>
<thead>
<tr>
<th>S. No.</th>
<th>ICT training</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>t-ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>ICT trained</td>
<td>40</td>
<td>207.77</td>
<td>25.02</td>
<td>1.52</td>
<td>Not Significant*</td>
</tr>
<tr>
<td>2.</td>
<td>ICT untrained</td>
<td>60</td>
<td>200.34</td>
<td>21.978</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
*Not Significant at 0.05 level.

The table 4 reveals that t-ratio between mean scores of teacher educators based on their ICT training has been found to be 1.52, which is not significant at 0.05 level. So there is no significant difference between ICT trained and ICT untrained teacher educators in their attitude towards competency and usage in ICT.

9. FINDINGS
i.) There is no significant difference between male and female teacher educators in their attitude towards ICT competency and usage.
ii.) There is significant difference between urban and rural teacher educators’ in their attitude towards competency and usage in ICT.
iii.) There is no significant difference between post graduate and graduate teacher educators’ in their attitude towards competency and usage in ICT.
iv.) There is no significant difference between ICT trained and ICT untrained teacher educators’ in their attitude towards competency and usage in ICT.

Suggestions for Further Study
i.) The present research could also be done on state level.
ii.) The same study can also be done on pupil teachers.
iii.) Study can be done to know the awareness of teacher educators towards ICT.
iv.) The same study can be done on secondary and senior secondary school teachers.
v.) The same study can also be done on inter-state level.

10. CONCLUSION

It can be very well seen from the analysis and findings of the above results that the attitude of the teacher educators towards competency and usage in ICT is not affected by their gender, qualification and ICT training but it is affected by locality. The teacher educators who are belonging to rural and urban areas have been found to have significant difference in their attitude towards ICT competency and usage. From the above discussion, it is revealed that teacher educators are lacking in ICT related pedagogical skills and therefore needs a comprehensive training program in ICT. Owing to the 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. This is probably one of the main reasons for the inadequate academic, professional and pedagogic preparation and insufficient level of knowledge and skills of the faculty. Besides this, traditional and modern methods of teaching, outdated knowledge and information and lack of skills, teachers attitude, aptitude and authenticity of their sources of knowledge are some of the other core issues that are to be addressed immediately. The teacher educators therefore need to acquire new knowledge and reliable and authentic information. It has become a common parlance that, for a teacher education program without an integration of ICT, it could not be said to be a complete one.

ICTs can be used as powerful tools so as to help learners access cast knowledge resources, collaborate with others, consult with experts, share knowledge, and solve
complex problems using cognitive tools. ICTs also provide learners with powerful new tools so as to represent knowledge with text, images, graphics and video. Hence to be productive and at the same time to be in a position to feel the global pulse, teacher educators as well as prospective teachers should be well prepared for using ICT in education and in teacher education programmes. The incorporation of ICT in education and training programmes has profound influence in teaching and teacher preparation. Modern pedagogy has focused on teacher educators’ instructional practices and knowledge of the curriculum and requires that they develop applications within their disciplines that make effective use of ICTs to support and extend teaching and learning. Teachers must be prepared to empower students with the advantages technology can bring. Schools and classrooms, both real and virtual, must have teachers who are well equipped with technology resources and skills and who can effectively teach the necessary subject matter content while incorporation technological concepts and skills.

For education to reap the full benefits of ICTs in learning, it is essential that pre-service and in-service teachers have basic ICT skills and competencies. Ultimately, the power of ICTs will be determined by the ability of teachers to use the new tools for learning to create rich, new, and interactive learning environments for their students. 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. Therefore it seems to be necessary for our future teachers to have the knowledge and understanding of the role of ICT in teaching learning process.

11. REFERENCES


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