

ENABLING ICT COMPETENCY AMONG TEACHER TRAINEES AND TEACHER EDUCATORS

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Abstract

Technology had special roles to play to enhance quality of education and training. The introduction of new technology has changed the face of our teaching learning scenario. It has the potential to change the manner in which students learn and teachers teach. To make full use of technological potentialities, a teacher has to take the lead. A teacher should be competent enough to create awareness and offer possibilities of ICT usage among his/her students. Research findings pointed to the teacher educators and teacher trainees lack of computer competence as a main barrier to their adoption and acceptance of ICT in teaching learning. Therefore, it is suggested that higher computer competency may foster the already positive attitudes of teacher educators and eventually result in their use of computers within classroom. Keeping it in mind a study is being carried out to explore need based competency areas, which may serve helpful in developing and devising new methods leading towards development of ICT competencies of teacher educators as well as of teacher trainees.

Kewwords : ICT competency, teacher educators, teacher trainees.

The advances in ICT have revolutionised the education system. They have changed the style of learning, teaching, communication and gaining access to information. Such advantages have compelled us to change our present style of schooling (Skeele & Daly, 1999; Dawes, 2000; Papo, 2001; Ravichandran & Sasikala, 2001; Howard, 2002; Dahiya, 2004; Al-Asmari, 2005; Murahari, 2007; Mishra, 2008; Garg et al., 2008). Unlike the previous society the present information society has accepted the new technologies for faster development and growth due to the global competition (Murahari & Kumar, 2008). Integration of Information and communication technologies has made an amazing range of media (audio-visual, radio, T.V., tele and video - conferencing, CD-ROMs, telephone, DVD, satellite, internet) available to us for quick and reliable data transmission storage and retrieval. The use of audio and radio, interactive radio, video, TV, tele-conferencing and other media networks in Asia is well documented (Garg et al., 2006; Reddi and Mishra, 2005). However, there are wide differences in the integration of ICT with learning material in India (Garg et al., 2008).

ICTs have brought new possibilities into the classroom, at the same time they have placed more demands on teachers. The use of ICT can make substantial changes both for teaching and training mainly in two ways. Firstly, the rich representation of information changes learner's perception and understanding of the context. Secondly, the vast distribution and easy access to information can change relationships between teacher and learner.

It needs to be understood that any new technology comes not merely with hardware and software, but with learning and teaching style and grammar of its own, and that management practices need to be adapted in order to use the technologies effectively (Mishra & Sharma, 2005). The role of teachers is important for the low uptake of technology integration. It is totally on the part of teacher to make effective use of technology in the classroom.

Whilst some teacher can cope adequately with large scale change, others are far more conservative in nature. In fact, with regard to the adoption of computers, it has been found that

teachers as a professional group are highly conservative (Adkisson, 1985; Gilman, 1989; Gunter, 2001; Feldman, 2004; Bhatia, 2008). Many teachers enjoy stability, see innovation as a threat and shun problems as undesirable. Such a situation proves to be a great hindrance towards becoming an ICT competent teacher educator. The teachers who shun ICT are generally the teachers who don't understand it or they are not used to it. Usually technophobia inflicts the older generation who hasn't grown up with ICT computers, computer games, complicated acronyms, or even calculators. Another thing that they dislike is the fact that they are being taught by those younger than them.

Teacher Educators are required to help future teachers to develop confident, positive, proactive attitudes so that they may cope more effectively with the challenges of technological innovations in schools. The ICT has revolutionized the teaching learning process at all levels and in all fields, but teacher education has not seen the light of the day (Chauhan, 2008). Thus, the challenge that remains is to use ICT for education and if this has to happen in education, the change has to begin from the teacher education system. Jayanthi & Padamanaban (2008) stated that there is a need to engineer a paradigm shift from "Computer Education" to "Computer for Education" preferably ICT for education. ICT skills should be incorporated through curriculum and both teacher educator and trainees need ICT skills and capabilities. Our educational institutions cannot ignore this ever increasing pace of technological progress and their role in building ICT empowered citizens. But only those teachers who have ICT competencies can handle this technological advancement. Thus it became necessary to create in the teachers an awareness of the possibilities of ICT which will lead to their willingness to learn it and resulting in the commitment and confidence to use it. Thus teacher education institutions have important role in making the teachers ICT competent teacher through in-service and pre-service courses. (Diskshit, 2006; Garg *et. al.*, 2008).

Despite numerous national and local initiatives ICT is not successfully seem integrated into education. Lack of resources both in terms of software and hardware and in terms of adequate training are often cited as the prime causes of the failure to advance. (Garg, 2008; Babu, 2008; Zayapragassarazan & Ramganesh, 2008). The reason for non-existent use of ICT in classrooms within teaching community is not only lack of resources and training but but also the poverty of knowledge within the teaching profession as a whole. Trainee teachers characteristically claim that reluctance to use ICT to support their teaching is due to a failure in their formal training which they describe as inadequate. Sadly, the knowledge base of the majority of practising teachers and of teacher educators is itself fragmentary in terms of ICT usage in teaching & learning (Desforges, 1995; Underwood, 1996). It is not therefore surprising that many students (trainee-teachers) are receiving inadequate training. Teacher educators are not confident in using the technology to support their own instruction and they therefore provide poor role models for the students. Teacher educators are intimidated by the newer technologies. Hence teacher educators pose poor role model for trainee teacher by not using ICT in their training. Teacher trainees also do not use ICT in their classroom as they were not trained to do so. Thus it becomes a vicious 'cycle of ignorance' of non-existent use of ICT (Underwood, 1996a; Underwood, 2005b). This cycle of ignorance must be broken and this can be done if we target the ICT competencies of teacher educators as well as teacher trainees. Thus for effective use of ICT in instructions and for formulating policies for future there is a need to have an investigation covering various aspects of ICT usage among academic community especially among teacher educators and teacher trainees. The present study is devoted to fulfil the purpose.

Objectives of the study

The present study has following main objectives-

1. To ascertain ICT familiarity among teacher educators and teacher trainees.

2. To find out competencies to use ICT among teacher educators and teacher trainees.
3. On the basis of research findings, suggest measures to uplift competences to use ICT among teacher educators and teacher trainees.

Review of related literature

The review of literature regarding ICT using competencies among teacher trainees and teacher educators clearly shows that ICT competency in general and pedagogical use, in particular, remains low. The majority of studies reported that training programme on ICT competency building is very much needed for teacher educators and teacher trainees (Adams, 2000; Russell et al., 2000; McCoy, 2001). One fourth of the total studies reported that teacher educators and teacher trainees exhibited simpler ICT skills but lacked pedagogical or advanced use of ICT (Crawford, 2000; Williams et al., 2000; Beck et al., 2002). A considerable number of studies reported that teacher training programmes were lacking ICT component and hence reflected on the need of training to be ICT competent (Goel, Anshuman & Shelat, 2003; Honey, 2005). Some studies suggested that teachers appreciated ICT competency building programmes and wished to work in ICT equipped institution (Hackbarth, 2000; Kader, 2008; Wong, 2008). Few studies reported that teacher trainees are more competent than their mentors (Barab et al., 2000; Deshmukh, 2002). Above studies outline the need for ICT competency among teacher educators and teacher trainees especially in pedagogical areas. These studies also emphasize the existing mismatch of ICT competencies between teacher educators and teacher trainees. Keeping these findings in view, a comprehensive study to ascertain ICT using competencies among teacher educators and trainees is very much required to present the clear picture.

Assumptions

1. The teacher educators and teacher trainees are familiar with ICT.
2. The teacher educators and teacher trainees are competent to use ICT.

Method of the study

The normative survey method was applied in the present study. The ICT using competencies of teacher educators as well as teacher trainees were studied. Numerous teacher training institutions, both, aided as well as self-financed institutions of Rohilkhand region, were taken for the study. A total of 95 teacher educators and 469 teacher trainees constituted the sample of the study. Through this study an attempt was made to ascertain ICT using competencies, among teacher educators and teacher trainees. For this purpose, data from teacher educators and teacher trainees was collected through self-developed and standardised questionnaire viz. ICT Competencies Questionnaire (ICTCQ). The analysis was carried out dimension-wise and item-wise. The data was categorized to assess the ICT competencies of teacher educators and teacher trainees of aided and self-financed institutions.

Findings and recommendations

Computer familiarity and operating skills of Teacher Educators and teacher trainees

On the dimension 'ICT familiarity and training' 81.05% teacher educators showed familiarity with computers. Of these only 42.10% reported to be actually operating the computer, and only 11.57% of them revealed possessing a formal training. On the issue of competency to operate computer 57.14% teacher trainees reported to be competent to operate computer whereas 61.4% showed familiarity with computers. 46.90% teacher trainees admitted that they learnt computer on

their own while 23.02% teacher trainees reported to be formally trained.

Software competencies of Teacher Educators and teacher trainees

Regarding the dimension 'competency to operate software' teacher educators were found competent in using simple software like - MS Word (30.52%) and paint brush(46.31%). Competency to operate other softwares like MS Powerpoint, Pagemaker, MS Excel & Photoshop was found to be less than 30%. Whereas 71.21% teacher trainees were found competent to use Paintbrush and 47.97% teacher trainee possess competency to operate MS Word.

Computer mediated task competencies of Teacher Educators and teacher trainees

Data about 'competency in using computer for different purpose' reveals that 52.63% teacher educators possess competency to use computer for typing and printing work. Nearly none of the teacher educators possess competency to use ICT for teaching learning activities. 72.9% teacher trainees of self financed colleges were found competent to use computer for typing and printing work. 44.51% teacher trainees of self financed college reported having more skills and competency in using computer for other purposes like gaming, chatting than teacher trainees of aided college (17.6%).

Hardware competencies of Teacher Educators and teacher trainees

About the 'competency of performing hardware related tasks' only 81.57% teacher educators were able to install printer and 12.63% possess competence to install a scanner. On the other hand 52.02% teacher trainees possess competency to install a printer and 9.8% teacher trainees could install a modem.

Hardware operating competencies of Teacher Educators and teacher trainees

34.73% teacher educators were found competent to handle inkjet printer followed by 27.36% with laser printer, 22.10% with scanner, 12.63% with pen drive and 5.26 with other hardware. On the other hand 50.31% teacher trainees possessed competency to handle inkjet printer 30% teacher trainees of self financed college are competent to work with laser printer in comparison to 18.2% teacher trainees of aided college.

Internet competencies of Teacher Educators and teacher trainees

47.36% teacher educators possess the competency to operate internet followed by 25.26% send e-mail, 23.16% download material from websites and 22.10% search relevant literature on internet. Whereas overall 62.47% teacher trainees are found competent to surf internet followed by 38.80% search relevant literature by giving keyword on internet, 26.43% download material from websites and 18.76% send e-mail.

Supportive hardware competencies of Teacher Educators and teacher trainees

57.89% teacher educators were found competent in using mobile phones as related ICT equipment followed by 35.78% in using DVD player and 23.15% in Digital Video Camera. Whereas competency to use multimedia projector was found almost absent. A significant part of the teacher trainees 78.03% revealed mobile phone is the most used equipment among them. DVD player was reported to be the second most used equipment (52.66%). The competency to use Digital video camera was reported by 27.29% and multimedia projector by 4.05% remained least used.

ICT training needs of Teacher Educators and teacher trainees

On the issue of "need of training to become ICT competent" 60.46% teacher educators of aided

college admitted need of training in typing and printing through computer, 39.53% wished to become competent in using internet and 11.62% and 9.30% in software & hardware functions. On the other hand 38.46% teacher educators of self- financed college reported need of training in typing and printing function of computer followed by 36.53% in internet using skills. Whereas 73.54% teacher trainees of self- financed college felt need of training in typing & printing functions of computer & 52.25% in using internet. 57.86% teacher trainees of aided college accepted need of training in typing & printing through computer, 22.01% in skills to use internet and 11.32% in software and 5.66% in computer hardware.

ICT competencies improving measures by Teacher Educators and teacher trainees

On the issue of 'Reading habits of ICT magazines in order to improve ICT competencies' only 8.15% teacher educators revealed to be reading magazines, whereas 36.88% teacher trainees were found to be reading ICT magazines.

Conclusion

On the basis of above mentioned findings it can be stated that the ICT using competencies of teacher educators and teacher trainees are fragmentary. Though the teacher educators and teacher trainees are aware of the benefits of ICT yet they are unable to integrate it into instructions due to incompetency of using ICT. To improve ICT using competencies all teacher educators and teacher trainees should use technology and teach about technology in ways appropriate to their discipline and stage of schooling. ICT should feature in all teacher education courses pre-service and in-service. If technology is infused in existing teacher education programmes, it will be more beneficial for trainee teachers as they will receive ICT based training by their mentors. This will serve as role model and motivate trainees themselves to try and explore creative uses of technology. To infuse ICT in education, change in pedagogy is must. It focuses on teacher's instructional practices and knowledge of the curriculum. Teacher educators should develop applications within their disciplines to make effective use of ICT and support and extend teaching and learning. Teacher educators and teacher trainees should be made realized about bridging the gap of knowledge between teacher and pupil, as pupils are getting techno-friendly whereas their teachers are not. To promote technological competencies among teacher educators, ICT centres should be established at regional and state level, and these should have collaboration with the teacher training institutions. At regular intervals, all the teacher educators and teacher trainees should necessarily be sent to receive training of new technological innovations. This study revealed that there is a need of training strategy for teacher educators as well as for teacher trainees to make them ICT competent. The study indicated, at large teacher educator's ICT competency is limited to simpler tasks compared to teacher trainees, who are more open to newer ICT innovations, more comfortable with ICT related activities like gaming, entertainment, e-mail and chatting. Such mismatches in competence must be taken care of to raise the level of teacher education programmes. The research findings indicate the training needs in ICT use among teacher educators and teacher trainees. Also it implies that teacher's preparation necessitates not merely providing additional training opportunities, but also aiding them in experimenting with ICT before being able to use it in their class rooms.

References

- Adams, J. (2000). Annex B anxiety? Finding ways out of the ICT labyrinth for ITTT courses. **Journal of Design and Technology Education**, 5(3), 248-253.
- Adkisson, J. (1985). A study of policy issues concerning the instructional uses of microcomputers and a survey of the policies of selected boards of education. **Doctoral Dissertation**, The George Washington University.
- Al-Asmari. (2005). The use of the internet among EFL teachers at the colleges of technology in Saudi Arabia. **Ph.D.**, 215.

The Ohio State University.

- Babu, M.S. (2008). Towards a better social science pedagogy. **University News**, 46(14), 15-17.
- Barab, S.A., Squire, K.D. & Dueber, W. (2000). A co-evolutionary model for supporting the emergence of authenticity. **Educational Technology Research and Development**, 48(2), 37-62.
- Beck, R.J., King, A. & Marshall, S.K. (2002). Effects of video-case construction on pre-service teachers' observations of teaching. **Journal of Experimental Education**, 70(4), 345-361.
- Bhatia, R. (2008). Blending traditional learning with online learning in teacher education, **University News**, 46(04), 11-13.
- Chauhan, C.P.S. (2008). Teacher Education and NCTE: Fencing eats the crops, **University News**, 46(23), 6-8.
- Crawford, R. (2000). Information technology in secondary schools and its impact on training information technology teachers. **Journal of Information technology for teacher education**, 9(2), 183-197.
- Deshmukh, A. (2002). Student perceptions regarding on-line teaching and learning. In Murphy, D., Shin, N. & Zhan, W. (eds.) **Advancing on-line learning in Asia**. Hongkong: Open University of Hongkong Press.
- Dawes, L. (2000). The National Grid for Learning and the professional development of teachers: outcomes of an opportunity for dialogue. **Ph.D. Thesis**, DeMontford University.
- Dahiya, S.S. (2004). ICT: Its integration in teacher education. **University News**, 42(22), 7-11.
- Desforges, C. (1995). Experience and knowledge for teaching. **Learning and Instruction**, vol.5, 385-400.
- Feldman, F.S. (2004). Believe it or not: a case study of the role beliefs play in three middle school teachers' use of computers in teaching science, 249. **Ph.D.**, University of California.
- Garg, S., Gupta, S. & Dikshit, J. (2008). Interface between education and emerging new technologies: Retrospect and prospects. **University News**, 46(38), 10.
- Garg, S. (2008). Use of technology in capacity building : Reflection on the role of the National Open University, **University News**, 46(30), 10-76.
- Goel, D.R., Anshuman & Shelat, P. (2003). ICT in education-a challenging experience. **University News**, 43(8), 2.
- Gunter, G.A. (2001). Making the difference: using emerging technologies and teaching strategies to restructure an undergraduate technology course for pre-service teachers. **Educational Media International**, 38(1), 13-20.
- Howard, J. (2002). Technology-oriented Project –based learning in teacher education: addressing the goals of transfer. **Journal of Technology and Teacher Education**, 10(3), 343-364.
- Honey, W.L. (2005). Computer lab usage by rural elementary classroom teachers. Southern Illinois University at Carbondale.
- Hackbarth, S. (2000). Changes in student's computer literacy: as a function of classroom access to computers and teacher utilisation, **Tech.Trends**, 44(4), 30-35.
- Kader, B.K.B.A. (2008). Malaysia 's experience in training teachers to use ICT. Case studies from Asia-Pacific region, Bangkok-UNESCO, 14-26
- Jayanthi, N.L.N. & Padamanaban, T. (2008). E-Tutoring for the teacher educators. **University News**, 46(40), 21-22.
- McCoy, R.W. (2001). Computer competencies for 21'st century information systems educator. **Information Technology, Learning and Performance Journal**, 19(2), 21-36.
- Mishra, S. & Sharma, R.C. (2005). Development of E-learning in India. **University News**, 43(11), 9-15.
- Murahari, B. & Kumar, V.V. (2008). New technologies for teaching and learning in the information age. **University News**, 46(40), 1-8.
- Murahari, B. (2007). The use of multimedia in open and distance learning. National conference volume, emerging trends in the use of Information and communication technologies, Rajiv Gandhi International School of Information technology, MGNIRSA, Hyderabad.
- Mishra, R. (2008). Evolutionary and Revolutionary: Information and communication technology. **University News**, 46(01), 17-20.
29. Papo, W. (2001). Integration of educational media in higher education large classes. **Educational Media**

International, 38(2), 95-99.

Ravichandran, R. & Sasikala, P. (2001). Computer based advanced technologies in education :developments, challenges and opportunities. *Journal of Indian Education*, 27(1), 25-30.

Reddi, U.V. & Mishra, S. (2005). Perspectives on Distance Education. *Educational Media in Asia*, Vancouver:COL.

Skeele, R.W. & Daly, J.K. (1999). Symbiosis:University /School partnerships. *Journal of Interactive Instruction Development*, 12(1), 30-31.

Underwood, J. (1996). Breaking the cycle of Ignorance : Information technology and the professional development of teachers in Passey, D. & Samways, B. (eds.). *Information Technology: Supporting change through teacher education*, proceedings of IFIPTC3 WG3.1 and 3.5 conference in Kiryat Anarim, Israel, Chapman & Hall, London.

Willis, D., Coles, A., Richardson, K., Wislon & Tuson, J. (2000). Integrating information and communications technology in professional practice: an analysis of teacher, sneeds. *Journal of InformationTechnology for Teacher Education*, 9(2), 167-182.

Wong, P. (2008). Bhutan "Support for teacher education"Project. Case studies from Asia-pacific region, Bangkok: UNESCO, 7-13.

Zayapragassarazan, Z. & Ramganes, E. (2008). Technophobia among the teaching community. *University News*, 46 (23), 12-14.