ICT APPLICATIONS AMONG THE TEACHER EDUCATORS: GENDER VARIATIONS

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Information and Communication Technologies (ICTs) are increasingly accepted and integrated in teaching, learning and research activities in universities, both internationally and locally. ICTs can offer a rich choice of learning experiences that are appropriate to needs, space, pace, aspirations and learning styles. Learning and training could become interactive in contrast to the one way delivery system of traditional face to face teaching. It even promotes self learning skills (Nsibirano, 2009). Technology is a powerful tool that gives teachers, students and others new ways to address problems like chronic shortages of time, materials, and professional development. ICT has the potential to enhance, access, quality and effectiveness in education in general and to enable the development of more and better teachers.

The application of ICT provides vast array of powerful tools that may help in transforming the present isolated, teacher-centered and text-bound classroom into rich student-focused, interactive knowledge environment. The challenge for teachers and teacher education institutions has been to create a new generation of teachers capable of employing a variety of technology and tools in all phases of academic, administrative, research and extension functions (D' Souza, 2012).

A stand-alone environment is when a computer is used independently without connection to any communication devices. Each computer needs a copy of the operating system and software being used. If a need to transfer data between departments, it will have to be done manually (Denny, 2009). The stand-alone applications are word processing, educational CDs and entertainment applications (http://www.ignou.ac.in/ICDE2005).

The network-based applications facilitate linkage of one computer with other computers via the international materials and services. Network-based technologies can provide learners with flexible access to materials at various times and location (Kovalchick & Dawson, 2003, p.638). The network-based applications are e-mail, internet browsing and chatting (http://www.ignou.ac.in/ICDE2005).

In recent years, the gender gap issue has caught many scholars' attention and as a result, many studies have been conducted to study this gap in technology internationally. Therefore, be interesting to find out how gender affects the utilization of ICT applications among the teacher educators is seen as not only crucial for the teaching and learning process but also for professional advancement. There is a gendered digital divide in university education both internationally and locally since girls and women have far lower levels of ICT access and use than their male counterparts. This has been in part a result of a long standing male dominated science and technology culture and of biased socialization processes that stereotype female and male potential and capacity for ICT. As a result women are discouraged from choosing and maintaining their participation not only in science related courses and professions but also technological courses (Morahan-Martin, 2000).

The category male and female belongs to a common set of humans. They are dissimilar from each other due to the interplay of biological mechanisms, resulting from a combination of anatomical, chromosomal and endocrinal features (Eckert & Mc Connell-Ginet, 2003). A reviewed study (Colley & Comber, 2003) revealed that more boys than girls in the younger age group had access to a home computer and boys reported higher frequency use of computer than girls and applications such as e-mail, accessing the internet and using CD-ROMs. The finding by Rajalakshmi and Anandan (2010) is contradictory to this finding revealing that females used ICT applications better than males.

SIGNIFICANCE OF THE STUDY
ICT integration into different levels of education creates effective learning environments and can provide the next generation the expected technology. The change and development of infrastructure in itself do not precipitate significant changes in the practice of teaching and its results. It is primarily the attitudes, willingness, and activity of teachers that cause changes in students' performance rather than the spread of technology. Some teachers cannot imagine their lessons without the new technology, but there are others who totally reject the use of computers.

The new devices provide today's teachers with several possibilities, but the realization of these is determined by countless factors. Teachers find computers helpful in planning, reducing the information processing burden of the learner, enhancing data presentation, verbal knowledge, management and promoting educational efficiency. Through the ICT, teachers can find knowledge resources in any discipline. They can also share their idea with other in any part of the world through World Wide Web, e-mail, bulletin board system, video text, fax and electronic meeting system. It leads to improve student's performance in thinking and problem solving.

ICT can help the teacher educators to establish a better rapport with students. It helps to deliver the content in a better way and eye contact of the student can be developed between technology and the teacher. Absentees can benefit greatly as the resources are accessible after the class. In order to exploit the opportunities of ICT effectively, new methodological and pedagogical approaches shall be better explored and employed by the teachers. So it is better to integrate technology with pedagogy in teacher education.

OBJECTIVES OF THE STUDY
1. To find the significant difference, if any, in the stand-alone applications of ICT among the secondary teacher educators with regard to gender;
2. To find the significant difference, if any, in the network-based applications of ICT among the secondary teacher educators with regard to gender.

HYPOTHESES FORMULATED
To achieve the above objectives, the following research hypotheses were framed.

1. There is no significant difference in the stand-alone applications of ICT among the secondary teacher educators with regard to gender.
2. There is no significant difference in the network-based applications of ICT among the secondary teacher educators with regard to gender.

METHODOLOGY
After analyzing the characteristics of the study, the investigator adopted survey method of research in the present study. In this study, the population included all the secondary teacher educators working in autonomous, government-aided and unaided colleges of education affiliated to the Tamilnadu Teachers Education University, Chennai in the three districts of southern Tamilnadu namely Tirunelveli, Tuticorin and Kanyakumari districts. The sample taken was 550 secondary teacher educators. The tool used was, BeaWi's ICT Practice Scale (BIPS). It has 46 statements with five point scale. The content validity, item analysis, split-half and test-retest reliabilities were established for this tool. The statistical techniques used for analyzing the data were: Percentage, Mean, Standard Deviation and t-test for independent and large means.

Data Analysis
The analysis of secondary teacher educators in their utilization of ICT for the sample based on gender was calculated and presented in the Tables 1 and 2.

Table 1,Difference in Stand-alone Applications among the Teacher Educators

Stand- alone application	Gender	N	Mean	SD	t value	P value
Word processing	Male	200	56.70	12.36	1.084	0.179 [NS]
	Female	350	55.48	13.25		
CD-ROMs	Male	200	24.55	6.61	1.142	0.000**
	Female	350	23.82	8.15		
Entertainment	Male	200	19.85	5.58	0.914	0.000**
	Female	350	19.37	6.51		
Stand- alone	Male	200	101.10	21.52	1.198	0.000**
	Female	350	98.67	25.12		

*** Significant at 1% level   NS - Not Significant*

Table 2,Difference in Network-based Applications among the Teacher Educators

Network-based application	Gender	N	Mean	SD	t value	P value
E-mail	Male	200	20.48	5.82	2.021	0.000**
	Female	350	19.37	6.74		
Internet	Male	200	23.70	5.82	0.374	0.078[NS]
	Female	350	23.50	6.60		
Chat	Male	200	16.15	4.92	2.335	0.026*
	Female	350	15.10	5.31		
Network- based	Male	200	60.33	13.55	1.871	0.024*
	Female	350	57.97	15.34		

*** Significant at 1% level   *Significant at 5% level   NS- Not Significant*

FINDINGS
1. Male secondary teacher educators practised more CD-ROM applications than their female counterparts.
2. Male secondary teacher educators used more entertainment applications than their female counterparts.
3. There is no significant difference in the word processing applications of ICT among the secondary teacher educators with regard to gender.
4. As a whole, male secondary teacher educators practised more *stand-alone applications* of ICT than their female counterparts.
5. Male secondary teacher educators used more e-mail applications than their female counterparts.
6. Male secondary teacher educators practised more chat applications than their female counterparts.
7. There is no significant difference in the Internet applications of ICT among the secondary teacher educators with regard to gender.
8. As a whole, male secondary teacher educators practised more *network-based applications* of ICT than their female counterparts.

INTERPRETATION

This study reveals that the male secondary teacher educators used more ICT applications than their female counterparts. The gender gap is wider in relation with the use of ICT. Females generally have less access to ICTs and use them sub optimally. Males rated themselves to be more competent than females in inserting and editing in CD-ROMs. Male teacher educators spend more time in playing games, reading and writing e-mails, chat with experts. The study revealed that the mean scores of stand-alone applications of ICT and network based applications of ICT of male teacher educators were significantly more than the female respondents.

RECOMMENDATIONS

The following recommendations are made on the basis of findings. Institutions should provide computer, multimedia projector, interactive whiteboard facilities to support and made it easy for them to integrate the use of ICT in teaching-learning. Effective utilization of ICT by teacher educators will increase the level of production in work organizations. Female teacher educators may be encouraged to pursue technology related diploma courses during their career. In-service and special programmes on ICT should be conducted for them. Incentives and enhanced career development counseling have to be for women to remove technophobia, stereotypes that act as barriers to the achievement of women in this ever changing techno-environments and encourage them to acquire higher qualifications. In order to increase the visibility of women and academic leadership through ICT, the management may introduce and promote positive social relationship. Gender sensitization and gender mainstreaming workshops should be conducted in the colleges of education. Female academics should also be encouraged to use the Internet in teaching and to increase their visibility in the academic field by publishing online journals and improve or update their profiles on university websites.

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