Prospective Teachers' Perception on ICT in Teacher Education

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ABSTRACT
Information and Communication Technology (ICT) is a collection of resources and tools used to generate, communicate, and to store, and manage information systematically. ICT includes computers, the internet, broadcasting technologies, and telephony. It also offers opportunities for global integration. ICT is an indicator for economic development and social well-being of poor people, and also indicator of empowerment of individuals and communities. It promotes the effectiveness, efficiency, and transparency of the public sector including the delivery of social services. ICTs have great potential for knowledge dissemination, effective learning and the development of more efficient education services.

UNO adds that ICT can be used to achieve the Millennium Development Goals (MDGs). UNESCO denotes that ICT takes vital role in achieving EFA principles and can enhance the quality of education in teacher training. Finally, ICTs contribute to a more conducive environment through the application of ICT in management and administration of Teacher Education. Prospective teachers at B.Ed level need to have more awareness and favorable attitude to associate with ICT. Thus, the investigator has stated his empirical research problem as "Prospective Teachers' Perception on ICT in Teacher Education". The objective of the study was to find out awareness and attitude of prospective teachers on ICT. The researcher also formulated null hypothesis with respect to objective. The study was conducted on 98 B.Ed trainees in the Dept of Education, RGU. The study also followed normative survey method using purposive sampling technique. Awareness and attitude scale were constructed and developed related to ICT. Data was collected and analyzed quantitatively with statistical treatment. The results were: There was significant difference in awareness and attitude between male prospective teachers and female prospective teachers. Female prospective teacher had less awareness and favourable attitude in using ICT applications than male prospective teachers.

Keywords
Prospective Teacher, Perception, ICT and Teacher Education

1. INTRODUCTION
ICT stands for Information and Communication Technology. It is a collection of technological tools and resources used to create, communicate, store, and manage information systematically. ICT includes technologies like computers, the internet, radio, television and telephony. ICT is a key input for economic development and growth [1]. It offers opportunities for global integration while retaining the identity of traditional societies. ICT can increase social well-being of poor people, and empower individuals as well as communities [2]. Finally, ICT can enhance the effectiveness, efficiency, and transparency of the public sector including the delivery of social services. ICTs have great potential for knowledge dissemination, effective learning and the development of more efficient education services.

Haddad and Draxler had identified five levels of technology use in education: Presentation, Demonstration, Drill and Practice, Interaction, and Collaboration [3]. They also added that networked computers and the Internet are the ICTs that enable interactive and collaborative learning best; their full potential as educational tools will remain unrealized if they are used merely for presentation or demonstration. There are positive effects of ICT on pupils' motivation [4]. Pupils are spending longer on tasks, increasing their commitment to learning, achieving more through the use of computers and of being enthusiastic about using computers in their lessons [5]. From the empirical researches, it is clear that there is a positive effect of specific uses of ICT on pupils' attainment in almost all the National Curriculum subjects, the most substantial positive effects being in Mathematics, Science and English at all vital stages. There is a strong relationship between the ways in which ICT has been used and the resulting attainment outcomes [6]. This indicates that the crucial component in the use of ICT within education is the teacher and their pedagogical approaches. It is confirmed that specific uses of ICT have had a positive impact on pupils' learning. ICT-multimedia was useful for some students in the middle ranges of ability.

UNO reveals that ICT can be used to achieve the Millennium Development Goals which include eradication of poverty and hunger, universal achievement of primary education, women empowerment, promoting maternal health, reducing child mortality, combating diseases like HIV/AIDS and Malaria diseases, promoting global partnership [7]. UNESCO admitted that ICT takes vital role in achieving EFA principles and can enhance the quality of education across the board at primary, secondary and tertiary level and also to support teacher training [8]. Finally, ICTs contribute to a more conducive environment through the application of ICT in management and administration of Teacher Education [9]. Prospective teachers at B.Ed level need to have more awareness and favorable attitude to associate with ICT. Thus, the investigator has stated his empirical research problem as 'Prospective Teachers' Perception on ICT in Teacher Education'.

Objectives of the study

- To find out prospective teachers' awareness on ICT in Teacher Education due to variation in gender.
- To find out prospective teachers' attitude on ICT in Teacher Education due to variation in gender.

Hypotheses of the study

- There exists no significant difference in prospective teachers' awareness on ICT in Teacher Education due to variation in gender.
- There exists no significant difference in prospective teachers' attitude on ICT in Teacher Education due to variation in gender.

2. METHODS

The present study was descriptive in nature, thus the investigator had followed normative survey method to collect data. A total of 100 prospective teachers from Dept of Education, Rajiv Gandhi University located in Doimukh of Arunachal Pradesh was taken as sample. But, due to inappropriate filling of information, two were rejected from the said sample, the rest of the present sample was 51 male and 47 female, drawn by using purposive sampling technique.

3. INSTRUMENTATION

Awareness and attitude scale were constructed and developed in order to measure awareness and attitude on ICT among prospective teachers. Awareness scale was made based on knowledge, understanding, application and skill related items in the form of multiple choice, filling blanks, matching and very short answer type. In this scale, 25 items were considered under the areas of MS-office package, internet and M-learning. The scale is mainly reflected on word processing, spreadsheets, power point presentation, internet, e-mail and chatting, M-Learning and overall awareness. The awareness scale contained face validity and content validity and its reliability was 0.75 which was considerable for applying on target group. Each right answer in awareness scale followed one point score except very short answer type items. Very short answer type item followed two point score only.

Attitude scale was related to five dimensions namely; 1) Relevance–acquiring necessary knowledge and skills to prepare for teaching using ICT, 2) Interest – motivating to find divergent thinking ways to work with the computer, 3) Utility – promoting professional growth as a prospective teacher, 4) Efficacy – effective meaningful and logical interactions with instructors and peers and 5) Methodic – teaching with systematic process and procedures. The attitude scale contained face validity and content validity and its reliability was 0.79 which was considerable for applying on target group. For each statement, the respondents were required to report their level of agreement on a five point Likert scale (1= Strongly Agree, 2=Agree, 3=Neither Agree Nor Disagree, 4=Disagree, 5=Strongly Disagree). If the statement was negative, the scoring would be followed in reverse order.

4. DATA COLLECTION

The selected items of all components of awareness scale and attitude scale were reflected with a general philosophy of ICT. A brief description of the purpose of the study was presented before prospective Teachers. Necessary instructions for filling out the questionnaires being were made clear to the respondents. They were asked to read carefully and complete questionnaires which contained an awareness and attitude scale. The respondents were also instructed to circle or tick their answers from given alternative options; all participants were asked to complete the questionnaires independently and Data was analyzed quantitatively with essential statistical treatment.

5. RESULTS AND DISCUSSION

Table-1 shows gender wise mean, SD and t-values of dimensions of awareness scale.

Sl. No	Dimensions of Awareness Scale	Male		Female		t-value
		Mean	SD	Mean	SD	
1	Word processing	2.98	0.32	2.80	0.34	4.09**
2	Spread sheets	3.26	0.31	3.12	3.41	2.72 **
3	Power Point Presentation	2.69	0.35	2.98	0.32	-5.21**
4	Internet	3.10	0.44	3.23	0.32	-2.61**
5	E-mail and chatting	2.87	0.34	2.91	0.36	-0.69**
6	M-learning	3.13	0.39	3.28	0.38	-2.72**
7	Overall	2.98	0.33	2.75	0.33	4.28**

**$p \leq 0.01$

From the table- 1, It is clear that t-value (4.09) with respect to word processing (M=2.98, SD=0.32; M=2.80, SD= 0.34), $p \leq 0.01$ is significant. It indicates that gender differs in word processing. The calculated t-value (2.72) with respect to spread sheet (M=3.26, SD=0.31; M=3.12, SD=0.41), $p \leq 0.01$ is significant. It means gender differs in spread sheet. The calculated t-value (-5.21) with respect to power point presentation (M=2.69, SD=0.35; M=2.98, SD=0.32), $p \leq 0.01$ is significant. It tells gender differs in power point presentation. The calculated t-value (-2.61) with respect to internet (M=3.10, SD=0.44; M=3.23, SD=0.32), $p \leq 0.01$ is significant. It tells gender differs in internet. The calculated t-value (-0.69) with respect to e-mail and chatting (M=2.87, SD=0.34; M=2.91, SD=0.36), $p \leq 0.01$ is significant. It tells gender differs in e-mail and chatting. The obtained t-value (-2.72) with respect to M-learning (M=3.13, SD=0.39; M=3.28, SD=0.38), $p \leq 0.01$ is significant. It tells gender differs in M-learning. The obtained t-value (4.28) with respect to overall (M=2.98, SD=0.33; M=2.75, SD=0.33), $p \leq 0.01$ is significant. It tells gender differs in overall awareness. From the mean values, it is clear that male prospective teachers (M=2.98) are higher than female prospective teachers (M=2.80) in their awareness with regard to word processing. Male prospective teachers (M=3.26) are higher than female prospective teachers (M=3.12) in their awareness with regard to spreadsheet. Male prospective teachers (M=2.69) are lower than female prospective teachers (M=2.98) in their awareness with regard to power point presentation. Male prospective teachers (M=3.10) are lower than female prospective teachers (M=3.23) in their awareness with regard to internet. Male prospective teachers (M=2.87) are lower than female prospective teachers (M=2.91) in their awareness with regard to e-mail and chatting. Male prospective teachers (M=3.13)

are lower than female prospective teachers (M=3.28) in their awareness with regard to M-Learning. Male prospective teachers (M=2.98) are higher than female prospective teachers (M=2.75) in their overall awareness.

Table-2 shows gender wise mean, SD and t-values of dimensions of attitude scale.

Sl. No	Dimensions of Attitude scale	Male		Female		t-value
		Mean	Sd	Mean	Sd	
1	Relevance	3.30	.34	3.19	.45	3.07**
2	Interest	2.98	.33	2.80	.35	4.30**
3	Utility	3.25	.34	3.12	.44	2.33*
4	Efficacy	3.24	.32	3.13	.42	2.71 **
5	Methodic	3.27	.32	3.10	.44	3.07**
6	Overall	3.01	.33	2.78	.34	4.32**

**$p \leq 0.01$

From the table- 2, It is clear that t-value (3.07) with respect to relevance (M=3.30, SD=0.34; M=3.19, SD= 0.45), $p \leq 0.01$ is significant. It indicates gender differs in relevance. The calculated t-value (4.30) with respect to interest (M=2.98, SD=0.33; M=2.80, SD=0.35), $p \leq 0.01$ is significant. It means gender differs in interest. The calculated t-value (2.33) with respect to utility (M=3.25, SD=0.34; M=3.12, SD=0.44), $p \leq 0.01$is significant. It tells gender differs in utility. The calculated t-value (2.71) with respect to efficacy (M=3.24, SD=0.32; M=3.13, SD=0.42), $p \leq 0.01$ is significant. It tells gender differs in efficacy. The calculated t-value (3.07) with respect to methodic (M=3.27, SD=0.32; M=3.10, SD=0.44), $p \leq 0.01$ is significant. It tells gender differs in methodic. The obtained t-value (2.33) with respect to overall (M=3.01, SD=0.32; M=2.78, SD=0.34), $p \leq 0.01$ is significant. It tells gender differs in overall. From the mean values, it is clear that male prospective teachers (M=3.30) are higher than female prospective teachers (M=3.19) in their attitude with regard to relevance. Male prospective teachers (M=2.98) are higher than female prospective teachers (M=2.80) in their attitude with regard to interest. Male prospective teachers (M=3.25) are higher than female prospective teachers (M=3.12) in their attitude with regard to utility. Male prospective teachers (M=3.24) are higher than female prospective teachers (M=3.13) in their attitude with regard to efficacy. From the mean values, it is clear that male prospective teachers (M=3.27) are higher than female prospective teachers (M=3.10) in their attitude with regard to methodic. Male prospective teachers (M=3.01) are higher than female prospective teachers (M=2.78) in their attitude with regard to overall.

6. INSIGHTS ON ICT

In Teacher Education, long-scale studies related to ICT are needed to:

- measure the effects of teachers' and pupils' ICT skills on the teaching and learning of various subjects
- monitor and assess the whole learning process, which is made up of various learning experiences in relation to ICT
- compare the effects of different uses of ICT on the learning of the same subject
- measure the effects of the use of ICT on the curriculum, and consequently on the learning of the pupils
- identify appropriate approaches and methods for measuring the effects of specific uses of ICT.
- study impact of various aspects of ICT on the retention of new skills and knowledge.
- assess the effects of different uses of ICT on pupils' attainment

7. CONCLUSION

Teachers should play a vital role in achieving universal primary education which is one of the most important components of millennium development goals. Subsequently, teachers should strive for providing quality education by facilitating ICT in classroom situations. They have to follow principles in relation to Education For All (EFA) which is set by UNESCO. ICT is an effective tool for implementing Education For All (EFA) principles. Prospective Teachers need to be well informed with latest trends and approaches in ICT to develop the students in scholastic and non-cognitive domains. In-service teachers have to attend actively in orientation programmes, workshops and symposia in connection with ICT for acquiring technical and professional competencies to deal children at primary, secondary and senior secondary level. ICT is also device to enhance inquiry skills and critical thinking abilities. So, Prospective teachers should act as reflective practitioner in mastery based classroom situations by using ICT skills. In the present study, it is evident that female prospective teachers have less favourable attitude towards using ICT applications. Hence, teachers' educators have to conduct orientation programmes on ICT so that female prospective teachers with rural background can develop awareness and positive attitude in using ICT applications in Teacher Education.

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