Integration of ICT in Teacher Education Curriculum: A Study of Perception of prospective Teachers

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Abstract **- Information and Communication Technology (ICT) is one of the most significant aspects of 21st century learning at all levels of education. Its effective usage can lead to the enhancement of skills and abilities of prospective teachers through teacher education program. Efficient use of ICT enables teachers to teach with enhanced pedagogical skills, strategies, techniques and competencies. Thus, there is a need to address the importance of integration of ICT in teacher education curriculum transaction to make prospective teachers techno-friendly so that they become capable to make learning meaningful and engaging for the learners. The present study probed the perception of prospective teachers about the integration of ICT in teacher education curriculum transaction. A self-developed questionnaire was administered on a sample of 200 pre-service teachers enrolled in 2-years B.Ed. program of two universities of Delhi and Haryana. Descriptive statistics was used for analyzing the data. The findings revealed that most of the sampled pre-service teachers had positive perception about the integration of ICT in teacher education curriculum transaction to enhance their pedagogical skills and ICT competencies, to facilitate classroom transactions, and to interestingly engage learners in the teaching learning process.**

Index Terms **- ICT, teacher education curriculum, teaching strategies, pre-service teachers.**

1.INTRODUCTION

Information and Communications Technologies (ICTs) have become the most basic building block of modern society. Mastering of information communication technology and understanding basic skills and concepts of ICT and competencies are now highly regarded in teacher training institution. ICT has been increasing at an amazing rate in instruction among teachers. Information and Communication Technology (ICT) integration into teacher education curriculum and teaching practices of teachers is a complicated and challenging issue. As far as pre-service teachers are concerned, this becomes critical because they need to be equipped with the competencies and develop a confidence for their future teaching practices. Professional development to incorporate ICTs into teaching and learning is an ongoing process. Pre-service teacher education curriculum needs to update this knowledge and skills as the institutional curriculum. The teachers need to learn to teach with digital technologies, even though many of them have not been taught to do so. Prospective teacher's professional development is central to the overall change process in teacher education program. Efficient use of ICT enables a teacher to make teaching-learning process meaningful and joyful for the learners. (Agyei & Voogt. 2011)

Integration of ICT into teacher education curriculum and teaching practices of teachers is a complex and challenging issue. In this regard, Gülbahar and Güven (2008) claim that just equipping institution with the essential ICT tools does not improve the quality of instruction and does not create more effective learning environments. Nevertheless, Institution should reconsider the current teaching programs, practices and resources by grasping a broader vision and philosophy of teaching. It is not simple to integrate technology successfully since it relies on interlinking variables (Akbaba-Altun, 2006). In this study, the interlinking variables, namely variables related to ICT integration in teacher education curriculum, are examined focusing on three categories related to pre-service teachers' ICT integration into teaching practices. These categories are conditions for ICT integration in education, pre-service teachers' perceptions of ICT integration and the perceived impact of pre-service teachers' perceptions on their practices of ICT in prospective teacher education program.

The integration of ICT into education remains a crucial issue for both teachers and prospective teachers to perform effectively in teaching-learning process. Therefore, teachers are required to be competent in the use of ICT (Voogt & Roblin, 2012; Pineida, 2011). An important factor for teachers to integrate technology into instruction is being trained in how to integrate technology into education (Pamuk & Peker, 2009). In this regard, teacher education programs play a significant role in training of pre-service teachers to integrate ICT into teacher education program. The programs should enable them to gain technology rich experiences throughout all aspects of training (UNESCO, 2008).

The effective integration of ICT in the curriculum with the intent of positively influencing teaching and learning has been in a state of development over the past years (Dockstader, 1999).This can be realized through changing the way people access, gather, analyze, present, transmit, and simulate information. Technology should be used as a tool to support teacher educational objectives such as skills for searching and assessing information, cooperation, communication, and problem solving which are important for the preparation of prospective teacher and more enable with the use of ICT in their teaching-learning process and develop knowledge, confidence level at pre-service stage (Drent & Meelissen, 2008; Voogt, 2003). Many researchers suggested that technology skills should be integrated throughout the teacher education curriculum in order to provide pre-service teachers with the skills and experiences needed to apply technology to their specific content areas (e.g., Niess, 2005). These programs laid emphasis on technological training in authentic teaching situations. In this respect, pre-service teacher education programs provide a wide range of approaches throughout their curriculum, (based on Ottenbreit-Leftwich et al., 2010; Polly et al., 2010): information delivery of technology integration content (e.g., lectures, ppt), hands-on technology skill building block of activities (e.g., workshops), practice with technology integration in the field (e.g., field experiences), and technology integration reflections (e.g., electronic portfolios). Recent studies have revealed that the best practices provided to pre-service teachers with regards to technology training include authentic experiences in real classrooms environment (e.g., Ottenbreit-Leftwich et al., 2010).

In light of the above reviewed and the existing research gap this study was frame with the purpose to study was to study the perceptions of pre-service teachers towards the Integration of ICT into Teacher Education Curriculum transaction: A Study of Perception of Pre-service Teachers to effective and efficient implement of curriculum in prospective teaching learning process and more knowledge about curriculum and related to policy documents which was emphasized on the integrating of ICT in teaching-learning process. Further, it was aimed to know the perception of pre-service teachers' towards integration of ICT in curriculum effectively enhancement of quality of pre-service teacher education program.

2. METHOD AND MATERIALS

2.1 Research Design

The researcher was used descriptive survey method in present study.

2.2 Sample Sampling Techniques

200 pre-service teachers of two universities who enrolled in 2-year B.Ed. program was constituted sample of the study. The sample was chosen using simple random sampling technique.

2.3 Variables of the Study

The perception of teachers regarding development of abilities of using ICT among teachers by teacher education program was taken as the dependent variable of the study and the availability and accessibility of ICT resources, and teachers' skills and competencies to use ICT resources in terms of curriculum transaction into subjects were taken as the independent variables of the study.

2.4 Tool Used for Data Collection

A self-developed questionnaire "Scale for ICT Achievements for pre-service teacher education program" this scale was used to know the perception of subjects towards the development of confidence regarding abilities & skills of using ICT among teachers by teacher education program in transaction of curriculum. This scale consisted four dimensions i.e. Institutions appropriately, use the approaches to integrating ICT in teaching learning process regarding NCF & NCFTE, Integration of ICT in teacher education curriculum broadly attempts to

equip teacher's with ICT competencies in professional capabilities, Institution enables to use various ICTs tools and application in term of curriculum transaction in teaching learning process, Integration of ICT enable to co-relate the multitude of pedagogical skill related to curriculum in teacher education program and ICT usage enhance transactional curriculum in teaching learning process effectively. The content validity checked by ICT expert in the field of educational technology in teaching-learning process and standardized the tool; test-retest reliability of the questionnaire was 0.85.

2.5 Procedure of Data Collection

Data was collected from the sample in single phase. The researcher took prior permission from the concerned authorities of both the universities to collect data from the prospective teacher. An informed consent also obtained from the respondents and after establishing a rapport with the respondent.

2.6 Statistical Analysis

The obtained data was analyzed by using parametric techniques. The mean score was calculated to know the level of perception of integration of ICT in teacher education curriculum transaction in prospective teacher education program. Standard Deviation was calculated to know the degree of heterogeneity in the subject responses of prospective teachers. Further, percentile was calculated to know the level of prospective teachers' perception in the development of confidence regarding abilities of using ICT skills among teachers. In the following table results of the study is presented.

Table 1: The researcher decided the percentile rank from 20 to 1. The researcher considered 20 ranks is equal to 100 percentages.

Rank	Percentage	Scale	Scores
20	100	Above average	20-17
15	75	Moderate	16-10
10	50	Average	9-6
5	25	Below average	5-1

3. RESULTS AND ANALYSIS

Table 2: Mean, SD and percentile using in integration of ICT in teacher education curriculum transaction: A study of perception of pre-service teachers (Max. Possible Score 20, N=200)

Dimensions	Mean	SD	Percentile value
Institutions appropriately use the approaches to integrating ICT in teaching learning process regarding NCF & NCFTE	16.85	1.622	P50=17.00
Integration of ICT in teacher education curriculum broadly attempts to equip teacher's with ICT competencies in professional capabilities	16.81	1.974	P50=16.00
Institution enables to use various ICTs tools and application in curriculum transaction in teaching learning process.	15.96	1.620	P50=16.00
Integration of ICT enable to co-relate the multitude of pedagogical skill to curriculum in teacher education program	15.85	1.895	P50=15.00
ICT usage enhance transactional curriculum in teaching learning process effectively	15.15	1.615	P50=15.00

The values of mean, SD and percentile for the five dimensions representing the five objectives of the study are interpreted below:

The mean, SD and percentile score of dimension 'Institutions appropriately use the approaches to integrating ICT in teaching learning process regarding NCF & NCFTE was 16.85, 1.622, value of P_{50} was 17.00 respectively. The mean value indicated above average, SD indicates heterogeneity of value whereas the percentile value indicated a nearly high level of views of prospective teachers with regard to this dimension of the study. The finding indicates that prospective teachers perceived that ICT is effectively integrated in curriculum transaction above average useful to enhance teachers' professional development skills.

When mean, SD and percentile value of dimension 'integration of ICT in teacher education curriculum

attempts to equip teachers with ICT competencies in professional capabilities enhances the efficacy of teacher education program' was 16.81, 1.974 and P_{50} was 16.00 respectively. The mean value indicated average whereas the percentile value indicated an above average level and SD indicates heterogeneity in views of prospective teachers with regard to this dimension of the study. This finding reveals that the prospective teachers perceived that ICT is useful to enhance efficacy of prospective teacher education program.

The mean, SD and percentile score of dimension 'Institution enables to use various ICTs tools and application in curriculum transaction in teaching learning process' was 15.96, 1.620 and P_{50} was 16.00 respectively. These three values indicated an above average level of views of prospective teachers with regard to this dimension of the study. Hence, it can be concluded that the prospective teachers perceived that ICT is moderately useful to enables to use ICTs various tools and application in curriculum transaction in teaching process.

In dimension mean, SD and percentile values 'Integration of ICT enable to co-relate the multitude of pedagogical skill to curriculum in teacher education program' was 15.85, 1.895 and P_{50} was 15.00 respectively. These three values indicated an above average level of views of prospective teachers with regard to this dimension of the study. This finding reveals that the

Prospective teachers perceived that Innovative data base training related to ICTs' is moderately useful to usage of ICT enables to co-relate multitude of pedagogical skill in prospective teacher education program.

In the last dimension of mean, SD and percentile score of dimension 'ICT usage enhance transactional curriculum in teaching learning process effectively' was 15.15, 1.615 and P50 was 15.00 values respectively. These three values indicated an average level of views of prospective teachers with regard this dimension of the study. This finding reveals that the prospective teachers perceived that ICT usage enhance transactional curriculum in teaching learning process effectively is average useful to usage of specific training course in vacation' in prospective teacher education program

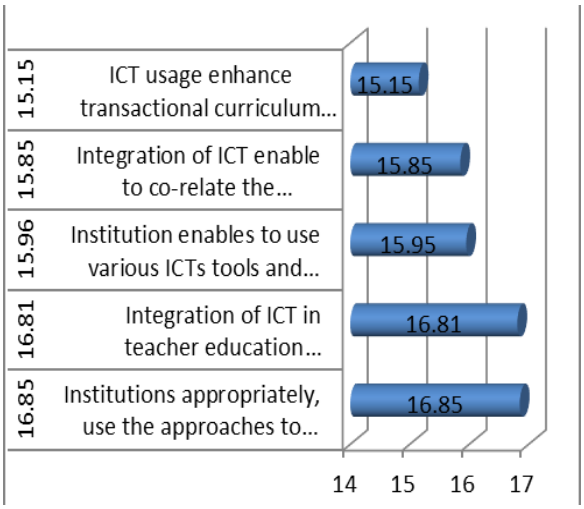

Figure 1: Graphical representation of mean scores for the four dimensions of the study

The percentile rank scores for each dimension of the study are depicted in figure 2 below:

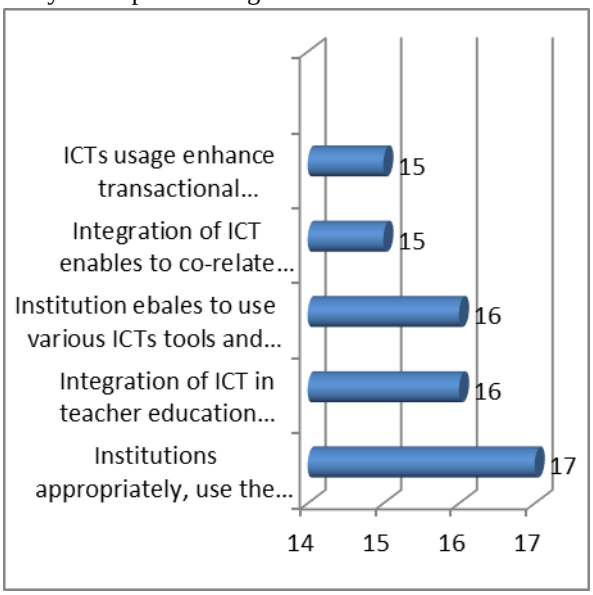

Figure 2: Graphical representation of percentile scores for the four dimensions of the study

4. DISCUSSION AND RECOMMENDATION

The findings reveal that the perception of pre-service teachers towards integration of ICT in teacher education curriculum transaction was moderate. As a whole the sample had moderately high perception towards the effective use of ICT is in institutional set-up inferences of curriculum. They also perceived that the use of ICT in teacher education curriculum transaction attempts to equip teacher's with ICT

competencies in professional capabilities was effective to an average extent. The use of ICT enables to use various ICT tools and application in curriculum transaction in teaching learning process was also perceived by them as effective to some extent.

The use of ICT as a tool of everyday life enhances the quality of students learning. Along with a shift of curricula from content-centered to competence-based, the mode of curricula delivery has now shifted from teacher-centered to student-centered supported with ICT (Sharma et al., 2011). Also, the pre-service teachers perceived that the use of ICT had average effect on the enhancement of teachers' multitude pedagogical skills abilities among the prospective teachers.

In addition, ICT can enhance teaching and learning through its dynamic and interactive approach which provides real opportunities for individualized instruction. In fact, innovative use of ICT can facilitate student-centered learning (Drent, 2005).An overall moderate of integration of ICT in teacher education curriculum perception of pre-service teachers towards the effective use of ICT in quality enhancement of pre-service teacher education program could be due to the reason that ICT was not being effectively used in their institutions some short of resources. Another reason may be that the pre-service teachers are habitual to be taught through conventional methods of teaching which can be accomplished with limited resources and does not require expertise other knowledge of contents and pedagogical skills. It could also be that the pre-service teachers are either techno-phobic or lack awareness of using ICT resources effectively to enrich the learning experiences of the learners.

Moreover, access to ICT facilities is necessary condition to the integration of ICT in teacher education curriculum (Plomp et al., 2009; Yildirim, 2007). Effective integration of ICT into teaching depends on the availability and accessibility of access to computers, updated software and hardware. In the same way, Yilmaz (2011) researches have shown that various levels of administrative support and technology leadership influence successful integration of ICT in teacher education curriculum adequately equipped with implementation of ICT in teacher education curriculum transaction. (Anderson & Dexter, 2005)

The teacher educators play a very significant role in framing the perception of pre-service teachers towards effective integration of ICT in their curriculum for quality enhancement of pre-service teacher education program. The reason for moderate perception of pre-service teachers in this regard could be that the teacher educators themselves are not using ICT effectively in their daily teaching practices. They might either be reluctant to use ICT resources available to them or they lack the required competence to use ICT effectively which could be a reason for moderate perception of pre-service teachers for effective use of ICT.

Another reason could be that both teacher educators and pre-service teachers are highly motivated to effectively integrate ICT in their curriculum and implementation to enhance the quality of their teaching practices but the institutions themselves are lacking the required ICT resources or do not make them available to teachers to prevent damage of resources and infrastructure or to avoid making extra arrangements to use these resources such as keeping a technical assistant, providing a room enabled for using ICT resources effectively, etc.

All these probable causes could be the reasons for a moderate perception of integration of ICT in teacher education curriculum transaction perception of pre-service teachers towards effective integration of ICT in quality enhancement of pre-service teacher education program.

5. CONCLUSION

The effective and efficient integration of ICT in prospective teacher education curriculum transaction development of abilities of using ICT among prospective teacher has now become an essential ingredient for a teaching-learning process that primarily focuses on inculcating 21st century skills and competencies in the learners and enhances and enriches their overall teaching experience. Significantly integration of ICT provides to transform of ICT related skill and abilities in creative and dynamics way in prospective teachers' development program. The knowledge, confidence, skills and attitudes that teachers need to acquire throughout their professional life. The judicious use of ICT resources can potentially prove to be facilitative to transform of the content and competencies of teachers in dynamics way in classroom into a 21st century prospective teacher development program space. There is an

urgent need for those directly or indirectly involved in teaching-learning process to critically reflect upon how they use ICT and ICTs related resources in teaching process and how their usage can be modified or improved to obtain maximum benefits. It is generally believed that ICT can empower teachers. Integration of ICT in teacher education curriculum transaction to enhance their pedagogical skills and ICT competencies, to facilitate content transaction in classroom, and to interestingly engage learners in the teaching learning process.

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