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Integration Of Technology In The Pedagogical Practices Of Teacher Educators: A Profile\00208756432 \Mnb

Prof. Rajeev Rattan Sharma[1*], Minakshy Sharma[2]

[1*]Professor, Head of Department, Department of Education, University of Jammu
[2]Research scholar, Department of education, University of Jammu, E-mail: sharmaminakshy@gmail.com,
Contact- 9906022366

Abstract
This study was conducted to find out the integration of technology by the teacher educators in their pedagogical practices. A random sample of the teacher educators from both private and government colleges from 4 districts of Jammu Division, covering 5 colleges of Education were taken for the study. Self prepared questionnaire and Interview schedule were used to study the Integration of technology by the Teacher educators in their pedagogical practices. The researcher used descriptive survey method and employed percentage statistics for analyzing the data. The findings of the research confirms that the teacher educators integrate technology in their pedagogical practices, the integration is in planning, organizing, delivering educational content through the use of technology in classroom practices. This study is very beneficial for all the teachers at all the stages of education, policy makers, curriculum planners and techno-experts to frame and design technology befitted for the content delivery and use for educational practices.

Keywords: Integration of Technology, Pedagogical Practices, Teacher Educator.

Introduction

Information Technology is widely used in the field of Education. Technological know-how is the practical knowledge or skill in technology. Knowledge applied to knowing, developing, and applying new forms of knowledge is the key to present development, Bottino (2003). No information society is possible without microprocessors and technology integration. Educators and policy makers believe that Information and Communication Technology are of crucial importance to the future of Education. Introducing technology in educational process is not enough to ensure technology integration since technology alone does not lead to change. More to say, it is the way in which teachers integrate technology that has the potential to bring about change in the educational process. Patil (2018) Technology is used to create, store, exchange and utilize information in its various forms including data, conversations and images. Use of email, satellite communication, interactive radios, local and wide area networks and computer simulation makes it easy to gather, analyze, use and share information. The teachers have to go beyond competence with the latest tools and develop an understanding of the technologies practices and instruments that can be used for educational purposes. It is not about what technology can do, but also what technology can do for them as a teacher, Sharma (2003).

Conceptual framework

Technology

Technology encompasses modern technologies such as computer, internet, digital technologies, and all hardware tools and software programmes used for dissemination classroom instruction to the students according to their need and level.

Pedagogy

Pedagogy describes the collected practices, processes, strategies, procedures and methods of teaching and learning. It also includes the knowledge about the aims of instruction, assessment and student learning.

Operational definitions of key terms

Integration of Technology:

Integration of Technology refers to the effective use of ICT to support and extend teaching and learning. The use and application of ICT and its devices whether direct or indirect in the teaching-learning process either by the students or by the teachers.

Pedagogical Practices:

A pedagogical practice focused on Teacher's instructional practices and knowledge of the curriculum and requires that they develop applications within their disciplines.

Teacher Educator:

A teacher educator is a professionally trained teacher teaching Teacher trainees in B.Ed. Colleges of Education.

Rationale of the study

As the studies of, Bottino (2003) and Sharma (2003) mention that the use of ICT can improve performance, teaching and develop relevant skills. It also improves the quality of Education by facilitating learning by doing, real time conversation, directed instruction, self learning solving, information seeking and analysis, and critical thinking, as well as the ability to

communicate, collaborate and learn Yuen et al, (2003). Researches have demonstrated that ICT can help deepen students' content knowledge, engage them in constructing their own knowledge, and support the development of complex thinking skills Kozma (2005), Kulik (2003), Webb & Cox (2004). As Bransfort, Brown, and Cocking (2000) pointed out to use technology effectively, the pedagogical paradigm needs to shift toward more student centered learning. Teachers' understanding and commitment are particularly important to sustain changes in areas such as project base or student-centered learning techniques, which require chances in teacher's instructional practice (Gersten et al., 2000). The need to go for this kind of study was important as it will provide an insight into the integration and use of technology for performing various teaching learning activities as well as integration of technology by teacher educators of different age groups to gauge the present situation thereby providing suggestions for further improvement in this context.

Statement of the problem

"A study on the Integration of technology in the pedagogical practices of teacher educators."

Objectives of the study

1. To understand the role of the technology in the delivery of the content by the teacher educators in the teacher Education institutes on the basis of age.
2. To find the significant difference in the use of the technology in the curriculum of the teacher education on the basis of the age.
3. To Study the Integration of Technology by the teacher educators in other dimensions of interaction away from the classrooms.

Hypothesis of the study

1. Technology integration plays a neutral role in the delivery of the content by Teacher educators of different age groups.
2. Technology integration in the curriculum plays a neutral role for the Teacher educators of different age groups.
3. There is integration of Technology by the teacher educators in other dimensions of interaction away from the classrooms.

Method

A descriptive survey approach was employed for the investigation.

Population

The population of the present study comprised of all the government and private colleges of Education of Jammu Division.

Sample

A sample was selected randomly from 4 districts of Jammu division. 5 Colleges of Education were randomly selected from these 4 districts and out of these five colleges, 5 teacher educators from each college were selected randomly based on two criteria viz. Teachers having knowledge of IT and teachers teaching compulsory subjects.

Tool

The investigator used self-prepared questionnaire for the Teacher Educator with reliability tested through cronbach alpha was 0.90. The investigator also done content and construct validity. The construct validity came out to be 0.66. Apart from it, the investigator also used focused Interviews with the teacher educators to understand how technology can better be integrated for successful teaching and learning.

Statistical Technique used

Percentages were employed to find out the Integration of Technology in Colleges of Education by Teacher educators at various age levels. Interview transcripts were also used to supplement the results.

Analysis of Data and Interpretation of Results

Technology has the capacity to reach learners in any place and at any time has the potential to promote revolutionary changes in the educational paradigm.

Objective I: To understand the role of the technology in the delivery of the content by the teacher educators in the teacher Education institutes on the basis of age

Table No. 1.1 Showing the use of Information and communication technology by teacher educators in classroom

Class	Age bracket		Total
	25-45 yrs	46-60 yrs	
Under Graduate	24%	0%	24%
Post Graduation	28%	0%	28%
Professional	36%	12%	48%

As per the Table No. 1.1, 24% of the Teacher Educators at undergraduate level, 28% of the Teacher Educators at post graduation level and 48% of the Teacher Educators at Professional level use computers and other ICT for classroom

instruction, the table values also reveals that majority (i.e., 88%) of the teacher educators using technology in the classroom lies in the age group of 25-45yrs as supported by Patil (2018) and Purcell at, el. (2013).

Table No. 1.2 Showing the access to Computer at Home

	Age bracket		Total
	25-45 yrs	46-60 yrs	
Access to Computer at Home	**50%**	**12%**	**62%**

As per the Table No. 1.2, 62% of the Teacher Educators have access of computer at home that ensures that they have working knowledge of computer and technology, using technology for teaching and learning purposes, out of which 50% of the teacher educators are from the age group of 25-45 years and only 12% of the teacher educators are from the age group of 46-60 years, the reason may be they are not well versed in technology use and find it not profitable to purchase technological devices at home as these are of no use for them as supported by Patil (2018) and Purcell at, el. (2013).

Table No. 1.3 Showing the access to Computer at Workplace

	Age bracket		Total
	25-45 yrs	46-60 yrs	
Access to Computer at Workplace	**76%**	**12%**	**88%**

As per the Table No. 1.3, 88% of the Teacher Educators have access to computer at workplace; they use technology for the teaching learning process where in 76% of the teacher educators are in the age group of 25-45 years and 12% of the teacher educators are in the age group of 46-60 years as supported by Patil (2018) and Purcell at, el. (2013).

Table No. 1.4 Showing the use of computers and technology for teaching purpose at workplace

	Age bracket		Total
	25-45 yrs	46-60 yrs	
Computers for teaching purpose at workplace	**60%**	**8%**	**68%**

As per the Table No. 1.4, 68% of the Teacher Educators use computers and technology for teaching purpose at workplace; they use technology for creating, transforming, sending, storing and displaying the teaching learning material. The table values also reveals that majority (i.e., 60%) of the teacher educators using technology for teaching purpose at workplace lies in the age group of 25-45yrs.

Table No. 1.5 Showing the teachers trained in Computer and ICT devices for its integration in teaching-learning process

	Age bracket		Total
	25-45 yrs	46-60 yrs	
Teachers trained in Computer and ICT devices for its integration in teaching-learning process	**84%**	**12%**	**96%**

As per the Table No. 1.5, 96% of the Teacher Educators trained in Computer and ICT devices for its integration in teaching-learning process. The table values also reveals that majority (i.e., 84%) of the teacher educators who receive training for the Integration of technology in teaching learning process lies in the age group of 25-45yrs as supported by Patil (2018) and Purcell at, el. (2013).

Table No. 1.6 Showing the Lessons taught through Hardware devices of Technology

	Age bracket		Total
	25-45 yrs	46-60 yrs	
Lessons taught through Hardware devices of Technology	**60%**	**8%**	**68%**

As per the Table No. 1.6, 68% of the Teacher Educators teach the lesson to the students by using hardware devices of technology. The table values also reveals that majority (i.e., 60%) of the teacher educators who teach the lesson to the students by using hardware devices of technology lies in the age group of 25-45yrs as supported by Patil (2018) and Purcell at, el. (2013).

Table No. 1.7 Showing the transformation through technological devices

	Age bracket		Total
	25-45 yrs	46-60 yrs	
Technological devices really transform teaching-learning for both teachers and learners	**88%**	**12%**	**100%**

As per the Table No. 1.7, 100% of the Teacher Educators agree that Technological devices really transform teaching-learning for both teachers and learners. The table values also reveals that majority (i.e., 88%) of the teacher educators who

were agree that transformation in teaching and learning takes place through technology intervention lies in the age group of 25-45yrs as supported by Patil (2018) and Purcell at, el. (2013).

Table No. 1.8 Showing the use of ICT and its application to develop constructivist way to learning

	Age bracket		Total
	25-45 yrs	46-60 yrs	
Use of ICT and its applications make teaching learning more interesting and easy for students to construct new knowledge and understanding.	**88%**	**12%**	**100%**

As per the Table No. 1.8, 100% of the Teacher Educators agree that the Use of ICT and its applications make teaching learning more interesting and easy for students to construct new knowledge and understanding. The table values also reveals that majority (i.e., 88%) of the teacher educators who were agree that the use of ICT and its applications make teaching learning more interesting and easy for students lies in the age group of 25-45yrs as supported by Patil (2018) and Purcell at, el. (2013).

Table No. 1.9 Showing the need of the teachers for more training in use of technology in teaching learning

	Age bracket		Total
	25-45 yrs	46-60 yrs	
Teachers need more updated training in use of technology in teaching learning	**88%**	**12%**	**100%**

As per the Table No. 1.9, 100% of the Teacher Educators agree that theyneed more updated training in use of technology in teaching learning. The table values also reveals that majority (i.e., 88%) of the teacher educators who were agree that more updated training is required for the use of technology in teaching learning process lies in the age group of 25-45yrs as supported by Patil (2018) and Purcell at, el. (2013).

Table No. 1.10 Showing the use of ICT for Interest and Motivation

	Age bracket		Total
	25-45 yrs	46-60 yrs	
The use of ICT in classroom enhance an interest and motivation among the students to be in the school for more of the time	**88%**	**12%**	**100%**

As per the Table No. 1.10, 100% of the Teacher Educators agree that the use of ICT in classroom enhance an interest and motivation among the students to be in the school for more of the time. The table values also reveals that majority (i.e., 88%) of the teacher educators who were agree that ICT sustains the Interest of the students in learning and motivates them to perform better in class lies in the age group of 25-45yrs as supported by Patil (2018) and Purcell at, el. (2013).

Table No. 1.11 Showing the role of ICT for communication skills

	Age bracket		Total
	25-45 yrs	46-60 yrs	
The communication skills well mastered and drilled with the help of ICT devices by teachers and trainees	**88%**	**12%**	**100%**

As per the Table No. 1.11, 100% of the Teacher Educators agree that the communication skills are well mastered and drilled with the help of ICT devices by teachers and trainees. The table values also reveals that majority (i.e., 88%) of the teacher educators who were agree that ICT enhances the communication skills and efficient them to perform better use language in class for imparting their ideas lies in the age group of 25-45yrs as supported by Patil (2018) and Purcell at, el. (2013).

Objective-2: To find the significant difference in the use of the technology in the curriculum of the teacher education on the basis of the age.

Table No. 1.12 Showing the teacher educators use of the technology in the curriculum of the teacher education on the basis of the age.

Statements regarding the use of the technology in the curriculum	Age bracket	
	25-45 yrs	46-60 yrs
Computers for teaching purpose	**60%**	**8%**
Teachers trained in Computer and ICT devices	**84%**	**12%**
Lessons taught through Hardware devices	**60%**	**8%**
Transformation through technological devices	**88%**	**12%**
Use of ICT to construct new knowledge and understanding.	**88%**	**12%**
Use of ICT for Interest and Motivation	**88%**	**12%**
ICT for communication skills	**88%**	**12%**
Use of ICT at home	**50%**	**12%**

As per the Table No. 1.12, Majority of the Teacher Educators in the age group of 25-45yrs use more technology in curriculum as compared to the teacher educators in the age group of 46-60yrs. It clearly reveals that age of the teacher also effect the integration for the technology in teaching learning process as supported by Purcell at, el. (2013).

Objective-3: To Study the Integration of Technology by the teacher educators in other dimensions of interaction away from the classrooms.

Table No. 1.13 Showing the teacher educators trained in technology for performing different activities

Activities	Age bracket		Total
	25-45 yrs	46-60 yrs	
Planning and Facilitating learning	88%	12%	100%
Discourage rote learning	64%	4%	68%
Encourage self learning	88%	12%	100%
Preparation of results	84%	12%	96%
Time table adjustment and management	68%	4%	72%
Keeping bio-records	88%	12%	100%
Communicating with parents	80%	12%	92%

As per the Table No. 1.13, 100% of the Teacher Educators agree that they use technology for Planning and Facilitating learning, wherein 88% of the Teacher Educators are in the age group of 25-45 yrs and merely 12% of the teacher educators integrate technology for Planning and Facilitating learning the reason may be the teacher educators in the age group of 46-60 years are not well versed in usage of latest software for educational planning as supported by Ruggiero & Mong (2015).
68% of the Teacher Educators agree that they use technology for Discouraging rote learning and memorization, wherein 88% of the Teacher Educators are in the age group of 25-45 yrs and merely 12% of the teacher educators integrate technology for Discouraging rote learning and memorization the reason may be the teacher educators in the age group of 46-60 years are themselves are using traditional methods in their teaching as supported by Ruggiero & Mong (2015).
100% of the Teacher Educators agree that they use technology for Encouraging self learning among the students, wherein 88% of the Teacher Educators are in the age group of 25-45 yrs and merely 12% of the teacher educators integrate technology for Encouraging self learning among the students the reason may be the teacher educators in the age group of 46-60 years are still applying underrated technology and have minimum use of technology integration in teaching and not suggesting students to use Independent learning techniques as supported by Ruggiero & Mong (2015).
96% of the Teacher Educators agree that they use technology for Preparation of results, 72% of the Teacher Educators agree that they use technology for Time table adjustment and management, wherein 88% of the Teacher Educators are in the age group of 25-45 yrs and merely 12% of the teacher educators integrate technology for Preparation of results the reason may be the teacher educators in the age group of 46-60 years are still not very comfortable to use data sheets for preparing results as they feel hesitant in using software packages for compiling results as supported by Ruggiero & Mong (2015).
100% of the Teacher Educators agree that they use technology for Keeping bio-records of students, wherein 88% of the Teacher Educators are in the age group of 25-45 yrs and merely 12% of the teacher educators integrate technology for Keeping bio-records of students the reason may be the teacher educators in the age group of 46-60 years are using technology only under compulsion but not very versatile as supported by Ruggiero & Mong (2015).
92% of the Teacher Educators agree that they use technology for Communicating with parents, wherein 88% of the Teacher Educators are in the age group of 25-45 yrs and merely 12% of the teacher educators integrate technology for Communicating with parents the reason may be the teacher educators in the age group of 46-60 years are quite not very adaptable to use technology and are bit shy of using technology or social networking media, etc. as supported by Ruggiero & Mong (2015).
Apart from it, the table no. 1.13 also reveals that the teacher educators in the age group of 25-45 yrs are very versatile in the use of technology for performing all these educational activities whereas the Teacher Educators in the age group of 46-60 years are not well adaptable to use modern technology as supported by Ruggiero & Mong (2015), Patil (2018) and Purcell at, el. (2013).

Some Suggestions based on the Study.

1. The teachers will be suggested to integrate technology in pedagogical practices to make classroom atmosphere liberal, friendly and by motivating the students through use of updated technology.
2. The administration will be recommended to plan and encourage workshops and seminars for students and teachers by focussing on hands on experience in current technological practices in the field of education.
3. Universities, Colleges and Higher education institutes may try to create updated group and committees catering the use of technology in teaching and learning by strengthening tasks and activities so that each Institution have a good bond with other HEIs , teachers as well as other students. This will help in maintaining good learning ecosystem.
4. Channelize the potentialities of the teachers and students in positive direction by introducing updated technologies in educational field.
5. Global community having vibrant knowledge and information of sound techno-pedagogical practices must be MOUs signed with institutions, community clubs, etc.

6. School, colleges, universities, societies must organize coaching to students for technology as a facilitator for teaching and learning.
7. Government must encourage and organize Faculty development programmes and orientations for in service and newly appointed teachers, so that they may gain practical experience of integrating technology in pedagogical practices
8. Policy makers and government agencies must make surveys of the higher educational institutions and try to find out the plausible reasons of low Integration.
9. Government must fund HEIs for training of teachers and teacher educators regarding technology use in teaching learning process.

Major Findings

1. All the Teacher Educators at under graduate, post graduate and professional level were using technology in the classroom for Instruction.
2. Majority (62%) of the Teacher Educators have access of computer at home that ensures that they have working knowledge of computer and technology.
3. Majorities (62%) of the Teacher Educators have access to computer at workplace; they use technology for the teaching learning process.
4. Majority (68%) of the Teacher Educators use computers and technology for teaching purpose at workplace; they use technology for creating, transforming, sending, storing and displaying the teaching learning material.
5. Majority (96%) of the Teacher Educators trained in Computer and ICT devices for its integration in teaching-learning process.
6. Majority (68%) of the Teacher Educators teach the lesson to the students by using hardware devices of technology.
7. All the Teacher Educators were in the agreement that Technological devices really transform teaching-learning for both teachers and learners.
8. All the Teacher Educators were in the agreement that the Use of ICT and its applications make teaching learning more interesting and easy for students to construct new knowledge and understanding.
9. All the Teacher Educators were in the agreement that theyneed more updated training in use of technology in teaching learning.
10. All the Teacher Educators were in the agreement that the use of ICT in classroom enhance an interest and motivation among the students to be in the school for more of the time.
11. All the Teacher Educators were in the agreement that the communication skills are well mastered and drilled with the help of ICT devices by teachers and trainees.
12. All the Teacher Educators were in the agreement that they use technology for Planning and Facilitating learning,
13. Majority (68%) of the Teacher Educators agree that they use technology for Discouraging rote learning and memorization,
14. All the Teacher Educators were in the agreement that they use technology for Encouraging self learning among the students,
15. Majority (96%) of the Teacher Educators agree that they use technology for Preparation of results,
16. Majority (72%) of the Teacher Educators agree that they use technology for Time table adjustment and management
17. All the Teacher Educators were in the agreement that they use technology for keeping bio-records of students.
18. Majority (92%) of the Teacher Educators agree that they use technology for Communicating with parents.
19. The results also reveal that the teacher educators in the age group of 25-35 yrs are very versatile in the use of technology for performing all the educational activities.

Discussion of the results

Technologies are transforming classrooms by bringing in new curricula based on real world problems, providing tools to enhance learning, giving students and teachers more opportunities for planning, delivering, feedback and reflection, and building local and global communities that include students, teachers, parents, practicing scientists, and research scholars as well; supported by Jhurree,V. (2005), Kozma and Anderson (2002). Many studies on ICT integration finds that the integration of ICT in pedagogical practices fall short of expectations because the educators continue working within a traditional vision of rote learning (Gersten et al., 2000). The ICT integration in developing country classrooms is challenging Comenius (2008). Studies have identified that integration of ICT into classroom can change the way students interact with the content Windschitl (2002). Moreover Kozma and Anderson (2002) remarked that education is at the core of knowledge economy and the role of ICT in education is shifting dramatically.

Conclusion

The present study has taken the comprehensive view of all the possibilities for the Integration of technology for the pedagogical practices. Education system around the world is under increasing pressure to use and Integrate ICT in all the domains of teaching and facilitating learning. It is combined processing and networking power of contemporary ICT that has launched a global socio-economic and educational paradigm.

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