Techno-Pedagogical Skills of Secondary Teacher Education Students

Fr. Dr. Sibichen K.K.

Assistant Professor in Education, St.Joseph's Training College, Mannanam, Kottayam, India

Abstract: *This study has been undertaken with a view to find out the techno-pedagogical skills of secondary teacher education students. Survey method was adopted for the study. Results reveal that there is significant difference between graduate and post-graduate secondary teacher education students in their skills in implementing instructional strategy and guidance. Results also reveal that there is significant difference between secondary teacher education students who have attended computer course and who have not attended computer course in their skill in learning, evaluation and techno-pedagogical skills. Thus, the present study shows that how techno-pedagogical skills in the classroom redefine established teaching-learning styles. Thus techno-pedagogical skills of teacher trainees play a pivotal role in the acquisition of knowledge and competency.*

Keywords: Techno-pedagogy, Techno-pedagogical skills, implementing instructional strategy

1. Introduction

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Teacher education involves professional preparation of teachers. The concept of teacher education is undergoing a rapid change throughout the world. It is no longer mere training as conceived earlier. It means the acquisition of that type of knowledge or information, skill and ability which helps a teacher to discharge his/her professional duties and responsibilities effectively and efficiently. It means shaping and reshaping the attitudes, habits and personality of a teacher. As the educational scenario goes through a vast change in the newly emerging society, the teachers need to be well equipped with knowledge which would create curiosity in students to learn new things (Dash, 2004).

Teacher education and teacher professional development are facing important quantitative and qualitative problems. It is estimated that 15–35 million new teachers are needed to achieve UNESCO's goal of Education for All. The value of technology in teaching and learning has been a subject of some contention in the education community for some time. Teachers' use of technology has an important role in education in the 21st century. Technology can provide powerful environments eliciting modern views of learning but may not change teachers' beliefs and practice. It depends on how teachers interpret the uses of tools and how they use them to transform the learning processes.

Techno-pedagogy

Literally, 'pedagogy' refers to the *art-science* of teaching and 'techno' refers to the *art-skill* in handcrafting, derived from the Latin 'texere' (to weave or fabricate). Here, 'techno' is a qualifier; it intersects or crosses the meaning of 'pedagogy' with its own content. Techno-pedagogy refers to weaving the techniques of the craft of teaching into the learning environment itself. It requires conscious recognition of the mediated learning environment in order to maximize ease and clarity in the transmission of information.

Significance of the study

Many teacher trainees know the content well but have not learned to transform or translate that knowledge into meaningful instruction. Directly or indirectly teacher education programme will benefit from techno-pedagogical skills. Technological pedagogical content knowledge extends beyond proficiency with technology for personal use to an understanding of how technology can be integrated with subject matter and the technology itself. In a 1995 study, the Office of Technology Assessment (OTA) found that teachers are reporting little use of technology and most teachers lack confidence to use technology effectively even though there is a greater availability of technologies in schools (Koehler, Mishra, & Yahya, 2004).

Teachers are expected to know to successfully integrate ICT into his/her subject areas to make learning more meaningful. This knowledge development during pre-service training has gained much importance with the notion that exposure to ICT during this time is helpful in increasing student teachers' willingness to integrate technology with classroom teaching. Pre-service teachers need to plan to use computers in their classrooms. Integrating technology in the classroom redefines established teacher-learner relationships and teaching-learning styles (Sibichen & Annaraja 2010).

Effective technology use includes such activities as linking curriculum outcomes with various technologies, establishing a learning context of discovery and process in the use of technology, collaborating with others both face-to-face and virtually to achieve learning outcomes, simulating real-world environments, and assessing outcomes. Teacher trainees can use technology to assist effectively and efficiently achieving curriculum objectives. Technology can provide powerful environments eliciting modern views of learning but may not change teachers' beliefs and practice.

2. Statement of the Problem

Teacher trainees can use technology to assist effectively and efficiently achieving curriculum objectives.

Technology can provide powerful environments eliciting modern views of learning. It depends on how teachers interpret the uses of tools and how they use them to transform the learning processes. Further, techno-pedagogical skills in teaching contribute a lot towards teaching competency. This is the rationale for studying the techno-pedagogical skills of secondary teacher education students and the study is titled as '**Techno-pedagogical skills of the secondary teacher education students.'**

3. Objectives

1. To find out whether there is any significant difference between male and female secondary teacher education students in their skill in learning, preparing lesson plan, preparing learning material, implementing instructional strategy, communication, evaluation, guidance and techno-pedagogical skills.
2. To find out whether there is any significant difference between graduate and post-graduate secondary teacher education students in their skill in learning, preparing lesson plan, preparing learning material, implementing instructional strategy, communication, evaluation, guidance and techno-pedagogical skills.
3. To find out whether there is any significant difference between secondary teacher education students who have attended computer course and who have not attended computer course in their skill in learning, preparing lesson plan, preparing learning material, implementing instructional strategy, communication, evaluation, guidance and techno-pedagogical skills.

Method used in the present study

The method adopted in the present study is survey. The investigator used stratified random sampling technique for selecting the sample. The sample of the study is secondary teacher education students studying in the B. Ed. colleges affiliated to Mahatma Gandhi University, Kottayam. The sample consisted of 75 secondary teacher education students, among them 37 are male students and 38 are female students.

Tool used

Techno-Pedagogical Skill Assessment Scale developed by Sibichen and Dr. P. Annaraja (2009). The investigator used test-retest method for establishing reliability of the tool. The reliability co-efficient of the Assessment Scale was computed to be 0.79

Statistical techniques used

Arithmetic mean, Standard Deviation, 't' test & ANOVA

4. Data Analysis

Table 1: Difference between male and female secondary teacher education students in their techno-pedagogical skills

Dimensions of techno pedagogical skills	Mean(male)	SD(male)	Mean(female)	SD(female)	t value	Level of significance
Learning	22.11	5.30	20.42	6.30	1.25	p<0.05
Preparing lesson plan	18.54	4.61	17.95	5.43	0.50	p<0.05
Preparing learning material	19.32	6.24	18	6.95	0.86	p<0.05
Implementing instructional strategies	22.11	4.97	23.34	4.65	1.11	p<0.05
Communication	19.95	5.31	20.45	5.93	0.38	p<0.05
Evaluation	18.24	6.72	16.82	7	0.89	p<0.05
Guidance	24.16	5.11	23.63	5.48	0.43	p<0.05
Techno pedagogical skills	144.43	28.23	140.61	29.68	0.57	p<0.0.5

Note. At 5% level of significance the table value of "t" is 1.96

It is inferred from the Table1 that there is no significant difference between male and female secondary teacher education students in their skill in learning, preparing lesson plan, preparing learning material, implementing instructional strategy, communication, evaluation, guidance and techno-pedagogical skills.

Table 2: Difference between graduate and post-graduate secondary teacher education students in their techno-pedagogical skills

Dimensions of techno pedagogical skills	Graduates		Post graduates		Calculated value of 't'	Level of significance
	Mean	SD	Mean	SD		
Learning	20.82	5.31	21.69	6.45	0.62	p<0.05
Preparing lesson plan	18.47	4.96	18.13	5.07	0.29	p<0.05
Preparing learning material	17.53	6.77	19.38	6.48	1.19	p<0.05
Implementing instructional strategy	21.53	4.70	23.72	4.77	1.97	p>0.05
Communication	19.44	5.58	20.90	5.72	1.09	p<0.05
Evaluation	17.18	6.07	17.97	7.66	0.48	p<0.05
Guidance	22.24	4.49	25.67	5.37	2.93	p>0.05
Techno pedagogical skills	137.21	27.89	147.46	29.83	1.51	p<0.05

Note. At 5% level of significance the table value of "t" is 1.96

It is inferred from the table 2 that there is no significant difference between graduate and post-graduate secondary teacher education students in their skill in learning, preparing lesson plan, preparing learning material, communication, evaluation and techno-pedagogical skills. But there is significant difference between graduate and post-graduate secondary teacher education students in their skills in implementing instructional strategy and guidance.

Table 3: Difference between secondary teacher education students who have attended computer course and who have not attended computer course in their techno-pedagogical skills

Dimensions of techno pedagogical skills	Mean and SD of those who have attended computer course		Mean and SD of those who have not attended computer course		Calculated value of 't'	Level of significance
	Mean	SD	Mean	SD		
Learning	22.17	5.81	19.09	5.62	2.10	p>0.05
Preparing lesson plan	17.94	5.33	18.77	4.28	0.64	p<0.05
Preparing learning material	18.96	6.90	17.77	6.03	0.70	p<0.05
Implementing instructional strategy	22.77	5.11	2.77	4.23	0.03	p<0.05
Communication	20.62	5.87	19.14	5.00	1.03	p<0.05
Evaluation	18.52	7.37	15.23	5.07	1.98	p>0.05
Guidance	24.42	4.99	22.91	5.84	1.13	p<0.05
Techno pedagogical skills	145.40	30.78	135.68	23.67	2.32	p>0.05

Note. At 5% level of significance the table value of 't' is 1.96

It is inferred from the Table 3 that there is no significant difference between secondary teacher education students who have attended computer course and who have not attended computer course in their skill in preparing lesson plan, preparing learning material, implementing instructional strategy, communication and guidance, but there is significant difference between secondary teacher education students who have attended computer course and who have not attended computer course in their skill in learning, evaluation and techno-pedagogical skills.

5. Findings and Conclusions

The t test results reveal that there is no significant difference between male and female secondary teacher education students in their skill in learning, preparing lesson plan, implementing instructional strategy, communication, evaluation, guidance and techno pedagogical skills.

't' test results reveal that there is significant difference between graduate and post-graduate secondary teacher education students in their skills in implementing instructional strategy and guidance. While comparing the mean scores of graduate and post-graduate secondary teacher education students in their skills in implementing instructional strategy and guidance, it is found that post-graduate secondary teacher education students are better than graduate secondary teacher education students in their skills in implementing instructional strategy and guidance. This may be due to the fact that post-graduate students are more familiar with a variety of instructional strategies related to their discipline. Also, post-graduate students have more experience and self-confidence compared to graduate secondary teacher education students.

't' test results reveal that there is significant difference between secondary teacher education students who have attended computer course and who have not attended computer course in their skill in learning, evaluation and techno-pedagogical skills.

While comparing the mean scores of secondary teacher education students who have attended computer course and who have not attended computer course in their skill

in learning, evaluation and techno pedagogical skills, it is found that secondary teacher education students who have attended computer course are better than those who have not attended computer course in their skill in learning, evaluation and techno pedagogical skills. This may be due the fact that secondary teacher education students who have attended computer course fare well due to their acquaintance with ICT and which provides powerful environments for eliciting modern views of learning. Also, they may have more access to acquire a variety of evaluation techniques which are available through internet. Moreover, exposure to computer course enables student teachers to integrate technology with classroom teaching and they know how to use technology effectively and efficiently in classroom.

Thus, the present study shows how techno-pedagogical skills in the classroom redefine established teaching-learning styles. Thus techno-pedagogical skills of teacher trainees play a pivotal role in the acquisition of knowledge and competency.

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