TECHNO-PEDAGOGICAL SKILLS OF SECONDARY TEACHER EDUCATION STUDENTS

ABSTRACT

This paper is undertaken with a view to find out whether differences exist in the techno-pedagogical skills of secondary teacher education students with respect to gender, educational qualification, optional subject and parents' annual income. The study is carried out on a sample of secondary teacher education students studying in the B. Ed. colleges affiliated to Mahatma Gandhi University, Kerala. The findings reveal that there is significant difference between graduate and post-graduate secondary teacher education students in their skills in implementing instructional strategy and guidance. The findings also reveal that there is significant difference among different optional subject secondary teacher education students in their techno-pedagogical skills. This study reflects on the relevance of integrating techno-pedagogical skills in teacher education.

INTRODUCTION

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. Asian-Pacific region teacher education faces many challenges due to widespread changes in educational and curriculum reforms.

Paradigms and approaches, derived from promising conceptual and technical tools capable of renewing instruction and activity systems, are needed to prepare teachers for 21st-century teaching and learning. 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 technologies 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.

SIGNFICANCE OF THE STUDY

The recent developments in technology have changed the world outside the classroom. Educators and policymakers believe that information and communication technologies are of supreme importance to the future of education and, in turn, for the country at large. As ICT is becoming an integral element for educational reforms and innovations at secondary schools, this situation calls for an enhancement of pre-service education on ICT for prospective teachers.

Many teacher trainees know the content well but have not learned to transform or translate that knowledge into meaningful instruction. Although pre-service teachers do have same knowledge of information and communication technologies (ICT), they have little know-how or techno-pedagogical ability with which to integrate those technologies into their teaching practice. Directly and indirectly teacher education programme will benefit from techno-pedagogical skills. Teachers are expected to know how best they can successfully integrate ICT into their 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.

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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 (Riel, 1998). It depends on how teachers interpret the uses of tools and how they use them to transform the learning processes.

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 plans, preparing learning materials, implementing instructional strategies, 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, and guidance and techno-pedagogical skills.

3. To find out whether there is any significant difference between secondary teacher education students who have attended any computer course and who have not attended any computer course in their skill in learning, preparing lesson plans, preparing learning materials, implementing instructional strategies, communication, evaluation, and guidance and techno-pedagogical skills.

4. To find out whether there is any significant difference among English, Social science, Mathematics, Natural science and Physical science secondary teacher education students in their skill in learning, preparing lesson plans, preparing learning materials, implementing instructional strategies, communication, evaluation, and guidance and techno-pedagogical skills.

METHOD USED IN THE PRESENT STUDY

The method adopted in the present study is the survey method.

SAMPLE

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, Kerala. The sample consists of 75 secondary teacher education students, of whom 37 are male students and 38 are female students.

TOOL USED

Techno-Pedagogical Skill Assessment Scale developed by Sibichen and Dr. P. Annaraja (2009)

STATISTICAL TECHNIQUES USED

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

DATA ANALYSIS

Table 1

DIFFERENCE BETWEEN MALE AND FEMALE SECONDARY TEACHER EDUCATION STUDENTS IN THEIR TECHNO-PEDAGOGICAL SKILLS

Dimensions of Techno-pedagogical skills	Male		Female		Calculated Value of 't'	Remark at 5% level
	Mean	SD	Mean	SD		
Learning	22.11	5.3	20.42	6.3	1.25	NS
Preparing lesson plans	18.54	4.61	17.95	5.43	0.5	NS
Preparing learning materials	19.32	6.24	18	6.95	0.86	NS
Implementing instructional strategies	22.11	4.97	23.34	4.65	1.11	NS
Communication	19.95	5.31	20.45	5.93	0.38	NS
Evaluation	18.24	6.72	16.82	7	0.89	NS
Guidance	24.16	5.11	23.63	5.48	0.43	NS
Techno-pedagogical skills	144.43	28.23	140.61	29.68	0.57	NS

(At 5% level of significance the table value of "t" is 1.96)

It is inferred from the above table that there is no significant difference between male and female secondary teacher education students in their skill in learning, preparing lesson plans, preparing learning materials, implementing instructional strategies, 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	Graduate		Post-		Calculated Value of 't'	Remark at 5% level
	Mean	SD	Mean	SD		
Learning	20.82	5.31	21.69	6.45	0.62	NS
Preparing lesson plans	18.47	4.96	18.13	5.07	0.29	NS
Preparing learning materials	17.53	6.77	19.38	6.48	1.19	NS
Implementing instructional strategies	21.53	4.7	23.72	4.77	1.97	S
Communication	19.44	5.58	20.9	5.72	1.09	NS
Evaluation	17.18	6.07	17.97	7.66	0.48	NS
Guidance	22.24	4.49	25.67	5.37	2.93	S
Techno-pedagogical skills	137.21	27.9	147.46	29.83	1.51	NS

(At 5% level of significance the table value of "t" is 1.96)

It is inferred from the above table that there is no significant difference between graduate and post-graduate secondary teacher education students in their skill in learning, preparing lesson plans, preparing learning materials, 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 strategies and guidance.

Table 3
DIFFERENCE BETWEEN SECONDARY TEACHER EDUCATION STUDENTS WHO HAVE ATTENDED ANY COMPUTER COURSE AND WHO HAVE NOT ATTENDED ANY COMPUTER COURSE IN THEIR TECHNO-PEDAGOGICAL SKILLS

Research Paper

Dimensions of Techno-pedagogical skills	Who have attended any computer course		Who have not attended any computer course		Calculated Value of 't'	Remark at 5% level
	Mean	SD	Mean	SD		
Learning	22.17	5.81	19.09	562	2.1	S
Preparing lesson plans	17.94	5.33	18.77	4.28	0.64	NS
Preparing learning materials	18.96	6.9	17.77	6.03	0.7	NS
Implementing instructional strategies	22.77	5.11	2.77	4.23	0.03	NS
Communication	20.62	5.87	19.14	5	1.03	NS
Evaluation	18.52	7.37	15.23	5.07	1.9	S
Guidance	24.42	4.99	22.91	5.84	1.13	NS
Techno-pedagogical skills	145.4	30.78	135.68	23.67	1.32	S

(At 5% level of significance the table value of "t" is 1.96)

It is inferred from the above table that there is no significant difference between secondary teacher education students who have attended any computer course and those who have not attended any computer course in their skill in preparing lesson plans, preparing learning materials, implementing instructional strategies, communication and guidance. But there is significant difference between secondary teacher education students who have attended any computer course and those who have not attended any computer course in their skill in learning, evaluation and techno-pedagogical skills.

Table 4

DIFFERENCE AMONG DIFFERENT OPTIONAL SUBJECT SECONDARY TEACHER EDUCATION STUDENTS IN THEIR TECHNO-PEDAGOGICAL SKILLS

Dimensions of Techno-pedagogical skills	Sources of Variation	Sum of Squares	Mean Square Variation	df	Calculated Value of 'F'	Remark at 5% level
Learning	Between groups	58.92	14.73	4	0.384	NS
	Within groups	2453.62	38.33	64		
Preparing lesson plans	Between groups	62.47	15.61	4	0.568	NS
	Within groups	1758.4	27.47	64		
Preparing learning materials	Between groups	59.69	14.92	4	0.337	NS
	Within groups	2832.85	44.26	64		
Implementing instructional strategies	Between groups	307.145	76.78	4	3.78	S
	Within groups	1300.01	20.31	64		
Communication	Between groups	55.928	13.98	4	0.447	NS
	Within groups	2000.36	3.25	64		
Evaluation	Between groups	291.04	72.76	4	1.68	NS
	Within groups	2761.82	43.15	64		
Guidance	Between groups	139.08	34.77	4	1.19	NS
	Within groups	1863.46	29.11	64		
Techno-pedagogical skills	Between groups	2124.67	51.17	4	0.619	NS
	Within groups	54915.52	858.05	64		

(At 5% level of significance the table value of "F" for 4, 64 df is 2.51)

It is inferred from the above table that there is no significant difference among English, Social science, Mathematics, Natural science and Physical science secondary teacher education students in their skill in learning, preparing lesson plans, preparing learning materials, communication, evaluation, guidance and techno-pedagogical skills. But there is significant difference among English, Social science, Mathematics, Natural science and Physical science secondary teacher education students in their skill in implementing instructional strategies.

FINDINGS AND CONCLUSION

't' test results reveal that post-graduate secondary teacher education students (mean=23.72, 25.67) are better than graduate secondary teacher education students (mean=21.53, 22.24) in their skills in implementing instructional strategies and guidance. This may be due to the exposure and experience post-graduate students receive on a variety of instructional strategies related to their discipline. 't' test results reveal that secondary teacher education students who have attended any computer course (mean=22.17, 18.52, 145.40) are better than those who have not attended any computer course(mean=19.09, 15.23, 135.68) in their skill in learning, evaluation and techno-pedagogical skills. This may be due the fact that exposure to computer course enables student teachers' to integrate technology with classroom teaching.

The ANOVA test results reveal that physical science optional secondary teacher education students are better than English, Social science, Mathematics and Natural science optional secondary teacher education students in their techno-pedagogical skills. This may be due the fact that Physical science optional secondary teacher education students are better trained in Physical science discipline and are more likely adapt to different instructional strategies in their respective discipline.

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