



Role Of Techno-Pedagogical Skills in The Evolution of Teacher Trainees

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Citation: Minakshy Sharma et al. (2024). Role Of Techno-Pedagogical Skills in The Evolution of Teacher Trainees, *Educational Administration: Theory and Practice*, 30(11), 1931-1935
DOI: 10.53555/kuey.v30i11.10148

ARTICLE INFO

ABSTRACT

The study was conducted to investigate the effectiveness of the content delivery in the classroom enhanced through the techno-pedagogical skills of teacher. The main objective of the paper is whether techno-pedagogical skills contributed to the proficiency in the teaching practices and content delivery of the teacher in classroom. A random sample of 200 teacher trainees was taken and their techno-pedagogical skills and proficiency in teaching related data was collected. The researcher collected the data with the help of self-constructed rating scales. Descriptive survey method of research was used. Percentage and Pearson's correlation were used to analyze the whole data. The results reveal that technology in pedagogical practices brings efficiency in classroom content delivery mechanism. The results also confirms that the teacher trainees with high techno-pedagogical skills have high proficiency in content delivery in classroom teaching whereas teacher trainees with low techno-pedagogical skills have low proficiency in content delivery in classroom teaching. The study is beneficial for the future teacher trainees, teacher educators, teachers, administration, government, policy makers, curriculum designers, technology experts in the field of education to acknowledge that techno-pedagogical skills are going to bring substantial change the classroom content delivery mechanism of the teacher and enhance the quality of teaching and learning; need to be catered and adopted accordingly.

Keywords: Techno-pedagogical skills, content delivery, proficiency, teacher trainees

Introduction

The teachers are the ones accountable to create a society full of responsible citizens, and are supposed to be trained to contribute towards society in a more worthy way. Thus a teacher should play the role of a techno-pedagogue, alongside also focuses on developing techno-pedagogical skills in pre-service teachers, Malakar & Gope (2022). As ICT is becoming an integral part of educational reforms and innovations, the aim of teacher education is to develop skills and appropriate knowledge among teacher trainees for using and integrating technology in an appropriate manner. Mondal (2024) technology influences the teaching learning process such as, Technology as a tutor, Technology as a teaching tool and Technology as a learning tool. It is a high time to utilize technology for all walks of life, especially for teaching and learning purposes. The Content alone is not sufficient. This content will have to be guided by active pedagogy supplemented by some sort of technology ensuring best utilization and presentation of content knowledge to students of diverse needs ensuring learning through the engagement of more senses. Singh and Indian (2024) technology may not be treated as separate from teaching and learning, rather it should be made an integrated and integral part of teaching and learning process. Bansal (2022) teacher educators and teachers should be trained in ICT literacy and Techno-Pedagogy. Grenon et, al. (2019) Ideally, they would be trained in the system they would be using to teach, would receive constant support from their institution, and should be motivated to work in these new environments

Conceptual framework

Techno-pedagogy for content delivery

Techno-pedagogy is a part of technological know-how in teaching and learning. Grenon et, al. (2019) techno-pedagogical elements helps support the development of the techno-pedagogical skills Good teaching is not simply adding technology to the existing teaching and content domain. Rather, techno-pedagogy assures classroom teaching can be complemented using technology. Techno-Pedagogy refers to electronically mediated courses that integrate the technology in day today class room practices, especially teaching, learning and evaluation, Mondal (2024). Such usage of technology empowers the teachers to use their skills in best possible manner for better content delivery in the classroom ensuring proficiency in teaching and efficiency in learning.

Operational definitions of key terms

Techno-pedagogical skills

It refers to the skill of a teacher to use technology effectively in pedagogical practices for facilitating learning effectively among students.

Content delivery

Content delivery refers to the Instructional strategy wherein a more matured personality delivers conceptual understanding to others. In the present study content delivery is the process wherein teacher imparts knowledge to students in best possible way.

Proficiency

Proficiency refers to efficiency, effectiveness or expertise in said field. In the present study, proficiency refers to expertise in teaching taking in consideration basic skills of a teacher in classroom.

Teacher trainees

It includes the students undergoing B.Ed. training in the different Institutions affiliated to University of Jammu.

Rationale of the study

The society of the 21st Century need not only education, by it is important that the education system should be transformed by integrating various need based interventions including technology which of course is dire need of the present circumstances. Innovative use of Information and Communication technology can potentially solve this problem has a strong pedagogical rationale. The present study is an attempt to study to explore the areas where techno-pedagogical skills are used in delivery mechanism and whether techno-pedagogical skills can bring efficiency in teaching. The availability and use of technology is sure a cause of much hyped change in better content delivery in classroom ensuring proficiency in the teaching.

Statement of the problem

“Role of techno-pedagogical skills in the evolution of teacher trainees”

Objectives of the study

1. To study the role of techno-pedagogy in bringing efficiency in delivery mechanism.
2. To study the relationship between techno-pedagogical skills and proficiency in content delivery of teacher trainees.

Method

In this study the researcher used the descriptive survey method to understand the present situation.

Population

The population of the present research comprises of teacher trainees of all the B.Ed. government and private colleges of Jammu District.

Tool and Sample

Techno-pedagogical skills tool and Proficiency in teaching tool were randomly administered to a sample of 200 teacher trainees. The sample is divided into two equal groups having high and low techno-pedagogical skills and high and low proficient in teaching for computing the correlation between high and low groups.

Statistical Technique used

The researcher used qualitative as well as quantitative techniques of statistics where in the percentage and Pearson correlations were used to analyze the data of the teacher trainees.

Analysis and Interpretations

Efficient Delivery mechanism is an important component of how effectively the teaching facilitates learning among the students. In context of techno-pedagogical skills, it refers to infusing technology into the teacher teaching. Techno-pedagogical skills acknowledge the communicative potential of ICTs to extend learning beyond the classroom walls and implications for teacher's development of new knowledge and skills. Technology in pedagogical practices brings with it new vision, benefits and facilitates teachers for better content delivery in classroom.

Objective I: To study the role of techno-pedagogy in bringing efficiency in delivery mechanism.

Technology plays a significant role in bringing efficiency in different areas of instruction delivery. From the vast literature review, the researcher found various areas as:

- Planning: Planning the lesson being taught.
- Integrating technology: The concepts and content being taught can be represented using technology.
- Evaluating learning systems.
- Managing time.
- Addressing the vast learner population.
- Addressing the learners from different backgrounds.
- Teaching learning process more meaningful, interesting and attractive way.
- Role of teacher is changed into mentor, coach, advisor, encourager, content expert, etc.
- Techno-pedagogy supported lab and use the internet at any time, and rely on telephone, cable, and internet services.
- Synchronous learning on Web provides pedagogical concepts to take advantage of new environments and maintain quality standards in online mode.

Objective II: To study the relationship between techno-pedagogical skills and proficiency in content delivery of teacher trainees.

Table No. 2.1 Computation of the correlation between high techno-pedagogical skills and high proficiency scores

Correlations		Techno-pedagogical skills (High)	Proficiency (High)
Techno-pedagogical skills (High)	Pearson Correlation	1	.315**
	Sig. (2-tailed)		.000
	N	100	100
Proficiency (High)	Pearson Correlation	.315**	1
	Sig. (2-tailed)	.000	
	N	100	100
**. Correlation is significant at the 0.01 level (2-tailed).			

Interpretation Table 2.1 shows that coefficient of correlation between Techno-pedagogical skills (High) and Proficiency came out to be 0.315. The calculated value of correlation is more than the table value 0.148 at 0.01 level of significance. Therefore, there is a significant and positive relationship between Techno-pedagogical skills (High) and Proficiency. Thus, the hypothesis 3 stands accepted which states that there is a significant relationship between Techno-pedagogical skills (High) and Proficiency (High) among teacher trainees. This finding is supported by (Mondal, 2024) in which they concluded techno-pedagogical competence shows a strong positive relationship with teacher outcomes as well as students' performance. Jayaraj & Ramnath (2018) found that teacher educators who use technology frequently have more technopedagogical skills and thus improve their teaching. Grenon et. al. (2019) Digital tools are constantly evolving, and continuous training is required to hone the techno pedagogical skills required for online teaching, which will now require instructors to be highly proficient in this skill

Table No. 2.2 Computation of the correlation between Low techno-pedagogical skills and Low proficiency scores

Correlations			
		Techno-pedagogical skills (Low)	Proficiency (Low)
Techno-pedagogical skills (Low)	Pearson Correlation	1	.159**
	Sig. (2-tailed)		.000
	N	100	100
Proficiency (Low)	Pearson Correlation	.159**	1
	Sig. (2-tailed)	.000	
	N	100	100
**. Correlation is significant at the 0.01 level (2-tailed).			

Interpretation Table 3 shows that coefficient of correlation between Techno-pedagogical skills (Low) and Proficiency (Low) came out to be 0.265. The calculated value of correlation is more than the table value 0.148 at .01 level of significance. Therefore, there is a significant and positive relationship between Techno-pedagogical skills (Low) and Proficiency (Low). Thus, the hypothesis 3 stands accepted which states that there is a significant relationship between Techno-pedagogical skills (Low) and Proficiency (Low) among teacher trainees. Jayaraj & Ramnath (2018) found that teacher educators who use technology frequently have more technopedagogical skills and thus improve their teaching.

This finding is supported by (**Habib,2018**) Teacher effectiveness is positively and significantly correlated, with techno-pedagogical competence of teachers of and approximately explained 29 % of variance in their teacher effectiveness. There is a significant positive relationship between teacher effectiveness and techno-pedagogical competence. Teachers having higher level of techno-pedagogical competency tended to have higher level of teacher effectiveness in comparison to those having lower level of techno-pedagogical competency.

When comparing the Correlations findings between (High)Techno-pedagogical skills and Proficiency scores and (Low)Techno-pedagogical skills and Proficiency scores, the findings reveal that those who have high techno-pedagogical skills have high proficiency in teaching whereas those who have Low techno-pedagogical skills have low proficiency in teaching. Singh and Indian (2024) pedagogical techniques can communicate content in different ways using technology, Techno-pedagogical competency can help teachers make quality education accessible and affordable to all students

Major Findings

- Findings reveal that Technology plays a significant role in bringing efficiency in different areas of instruction delivery Viz. Planning, Integrating technology, Evaluating learning systems, Managing time, Addressing the vast learners, Addressing the learners from different backgrounds, Making teaching-learning more attractive and meaningful, Changed role and context of teacher, Techno-pedagogy supported lab, Synchronous learning, etc.
- Findings reveal that there is a significant and positive relationship between Techno-pedagogical skills (High) and Proficiency (High).
- Findings reveal that there is a significant and positive relationship between Techno-pedagogical skills (Low) and Proficiency (Low).
- When comparing the Correlations findings between (High)Techno-pedagogical skills and Proficiency scores and (Low)Techno-pedagogical skills and Proficiency scores, the findings reveal that those who have high techno-pedagogical skills have high proficiency in teaching whereas those who have Low techno-pedagogical skills have low proficiency in teaching. In simple words, it may be find that techno-pedagogical skills are concerned with increasing efficiency in teaching and these Techno-pedagogical skills contributed for better content delivery in the classroom.

Discussion of the results

Grenon et, al. (2019) technological and techno-pedagogical skills of the instructors must be developed according to the different teaching methods: synchronous, asynchronous, bimodal, and hybrid or fully remote. Bansal (2022) Teacher educators must evolve from pedagogues to techno pedagogue. Human and material infrastructure as well as media culture must be developed. Mondal (2024) technology mediated class room provides opportunity to learn with the teacher rather by the teacher. Teaching is going to be Integral part of the teaching-learning process because such persons who have low techno-pedagogical skills they have low proficiency in teaching and those who have high techno-pedagogical skills they have high proficiency in teaching. Mondal (2024) Teachers who get adequate institutional help, infrastructural support and on-going staff development regarding technology they report low techno stress and high effective output scores. So, the teaching to some extent dependent on techno-pedagogical skills and other skills which are to be further

researched. In case they want to be proficient in teaching, they also need to upgrade their other teaching skills apart from the techno-pedagogical skills if they have to excel in their profession.

Conclusion

The study concludes that techno-pedagogical skills are the need of the contemporary teaching practices; it of course is an important indicator of the efficient content delivery ensuring proficiency in teaching. Thus, it need necessarily be included intrusively as well as extrusively in content delivery for better and quality delivery of content and facilitating learning as an easy and joyful experience for both the teacher and the student.

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