Academe *Journal of Education & Psychology*
Volume-13, Issue-2, Year-2023 (July-December)
PP: 30-35 *ISSN No: 2249-040X*

TECHNO PEDAGOGICAL COMPETENCY AMONG SECONDARY SCHOOL TEACHERS

Ruchi Bhargava

Assistant Professor, Khlasa College of Education, Ranjit Avenue, Amritsar

ABSTRACT

The present study investigates the study of techno pedagogical competency and teacher efficacy of adolescent students. The sample consisted 200 secondary school teachers were selected from four different schools of Amritsar (Punjab). In order to test, the hypothesis formulated for the present study. The scores obtained from different tests were subjected to statistical analysis and interpretation. Raw scores were tabulated and analyzed mean scores, standard deviation, standard error and correlation were used to arrive at the conclusions – (i) There is no significant difference in Techno Pedagogical Competency of male and female secondary school teachers. (ii) There is significant difference in Techno Pedagogical Competency of government and private secondary school teachers.

KEY WORDS: Techno Pedagogical Competency, Teacher Efficacy, Secondary School Teachers

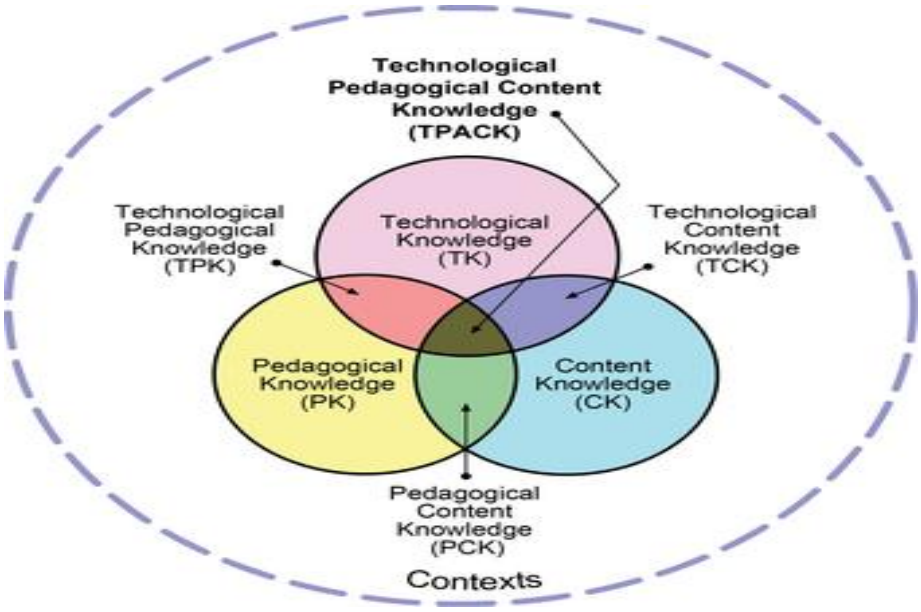
INTRODUCTION

Education is defined as a systematic process of determining the extent to which the objectives are achieved by the pupils. According to Tagore, "Education is that which does not merely give us information but makes our life in harmony with all existence." The education system has now witnessed a paradigm shift from the traditional chalk and board teaching methodology to digitizing the pedagogical approach through technical devices. A transformation would not only increase the capability of the teachers but would also widen the knowledge base of students so as make them competitive in the international arena. Competent teachers have a good command of specialized knowledge of how to facilitate and represent the subject matter to students in a meaningful way. They attempt to understand the preconceptions and background knowledge that students bring to each subject and are familiar with approaches and instructional materials that can be helpful. They understand where difficulties are likely to arise and modify their practice accordingly. Their instructional repertoire allows them to create multiple ways of approaching the subject. As the educational scenario goes through a vast change in the newly emerging society, the teachers need to be well-equipped with knowledge that would create curiosity in students to learn new things (Dash, 2004).

TECHNO PEDAGOGICAL CONTENT KNOWLEDGE

Technological Pedagogical Content Knowledge (TPACK) is a framework to understand and describe the kinds of knowledge needed by a teacher for effective pedagogical practice in a technology-enhanced learning environment. The idea of pedagogical content knowledge (PCK) was first described by Lee Shulman (Shulman 1986) and TPACK builds on those core ideas through the inclusion of technology.

General Pedagogical Knowledge: General pedagogical knowledge is the kind of knowledge that teachers should have about the practices and methods of teaching and learning which encompass overall educational purposes, values, and aims. This is a general form of knowledge that is related to all such issues of student learning, classroom management, lesson planning and implementation, and student evaluation. It includes knowledge about techniques or methods to be used in the classroom; the nature and characteristics of the students; and strategies for evaluating student understanding. A teacher with deep general pedagogical knowledge knows how students construct knowledge, acquire skills and develop



new attitudes; they know how they develop habits of mind and positive dispositions towards learning.

1. **Content Knowledge:** Content knowledge is knowledge about the actual subject matter that is to be learned or taught. The content to be covered in middle school science or history is different from the content to be covered in an undergraduate course on art appreciation or a graduate seminar on astrophysics. Knowledge of content is of critical importance for teachers. As (Shulman, 1986) noted, this would include knowledge of concepts, theories, ideas, organizational frameworks, knowledge of evidence and proof, as well as established practices and approaches towards developing such knowledge**.**
2. **Pedagogical Content Knowledge**: Pedagogical content knowledge is a term used to refer to the knowledge that teachers possess which enables them to better utilize their content knowledge by drawing on different pedagogical approaches most appropriate for delivering the most important concepts in the teaching of a particular subject matter. Pedagogical content knowledge is viewed as the most critical form of teacher knowledge for delivering the teaching content to enable students to understand it in a meaningful way.
3. **Technological Content Knowledge:** Another form of teacher professional knowledge is technological content knowledge (TCK). We can define technological content knowledge as an understanding of how technology and content influence and constrain one another. It refers to the special domain of teachers' professional knowledge that is related to how technology can be integrated and utilized in teaching

particular concepts and topics to provide students with a deeper and more comprehensive understanding of that concept or topic.

4. **Technological Pedagogical Knowledge:** Technological pedagogical knowledge (TPK) is the knowledge of how various technologies can be used in teaching which includes an understanding that using technology may change the way teachers teach. Technological pedagogical knowledge is an understanding of how the application of particular technologies can change teaching and learning. this includes being with the pedagogical affordances and limitations of using a variety of technological tools as they relate to disciplinary and developmentally appropriate pedagogical approaches and strategies. Thus, a thorough understanding is required of the limitations and affordances of technologies and the disciplinary contexts within which they are used.
5. **Technological Pedagogical Content Knowledge:** TPCK is an emergent form of knowledge that goes beyond all three components (content, pedagogy, and technology). Technological pedagogical content knowledge is an understanding that arises from an interaction between content, pedagogy, and technology knowledge. For meaningful and skilled teaching with technology, TPCK is by far more than knowing all three concepts separately. technological pedagogical content knowledge promotes effective teaching with technology that involves an understanding of how best to represent concepts to students with the use of technology, an understanding of pedagogical techniques and approaches that use technologies in fruitful ways in teaching content, knowledge of what makes concepts difficult or easy to learn and how best to apply technology to redress some of the problems that students face in their learning, knowledge of students' already existing knowledge and theories of epistemology, and knowledge of how to use technologies to build on existing knowledge.

TECHNO PEDAGOGICAL COMPETENCY

Techno Pedagogy decides whether an education media product is successful or not. Pedagogy refers to 'Science and Arts of teaching' Techno is derived from the Latin word 'Texere' which means 'weave or construct'. Techno-Pedagogy refers to weaving the techniques of teaching into the learning environment itself. Education Technology provides approximate designing learning situations, holding in view the objectives of the teaching and learning bring the best practices/means of instructions which affect learning.

According toLee & Tsai (2010), Techno pedagogical competency is the art of integrating sound pedagogic principles of teaching/learning with the use of technology. It refers to weaving the techniques of the craft of teaching into the learning environment itself.

Yurdakul (2011) stated that today the TPACK competencies are very much needed for teacher-educators because they facilitate the prospective teachers and make them become techno-pedagogues. Hence teacher-educators should be provided opportunities to get practical and pedagogical skills by using the recent technologies during their teaching-learning process. In techno pedagogy, there are three areas of knowledge which include name, content, technology, and pedagogy: -

1. **Content: -** content is the subject matter or body of information that is to be learned or taught to the students. It refers to the facts, concepts, theories, and principles that are taught and learned rather than reading and writing.
2. **Technology:** - Technology encompasses an understanding of how to use computer software and hardware such as the internet, digital video, and common technologies

including overhead projectors, interactive boards, and e-books in education. It is about certain ways of thinking and functioning with technology, tools, and resources.

3. **Pedagogy**: - Pedagogy is an understanding of how teaching and learning can be transformed and carried out with the assistance of various strategies, procedures, processes, and methods. Acquiring techno pedagogical competencies will make teaching and learning a more pleasurable and meaningful endeavour as it will lessen the pressure on the part of the teachers and enable the students to develop a deeper domain of knowledge.

STATEMENT OF THE PROBLEM

TECHNO PEDAGOGICAL COMPETENCY AMONG SECONDARY SCHOOL TEACHERS

DELIMITATIONS OF THE PROBLEM

1. The present study was confined to 200 secondary school teachers both male and female
2. The present study was confined to government and private secondary schools of the Amritsar district only.

OBJECTIVES OF THE STUDY

1. To study the Techno Pedagogical Competency of secondary school teachers with respect to gender.
2. To study the Techno Pedagogical Competency of secondary school teachers with respect to type of school.

HYPOTHESES OF THE STUDY

1. There will be no significant difference in Techno Pedagogical Competency of male and female secondary school teachers
2. There will be no significant difference in Techno Pedagogical Competency of government and private secondary school teachers

COMPARSION OF MEANS

In order to verify the hypothesis 1, 2, and 3 t-tests was employed and the results are displayed in the following tables

Hypotheses-1 was framed to examine that "**There will be no significant difference in Techno Pedagogical Competency of male and female secondary school teachers "**

The mean, S.D. and t value of techno pedagogical competencies among male and female teachers of secondary school teachers were calculated in this hypothesis. The hypothesis was examined at 0.01 level and 0.05 level of significance. The result of this analysis is being shown below:

Table 1.1

Showing Mean SD, SE_d, and t value of techno pedagogical competency among male and female secondary school teachers

Particulars	N	Mean	SD	SE_d	t value
Female	100	111.100	32.3052	3.2305	**-2.333**
Male	100	123.220	40.6983	4.0698	

(Not significant at both levels of confidence)

The table 4.1 reveals that the mean score of teacher techno pedagogical competency of females is 111.10 and those of male teachers is 123.22 and SD of female and male teachers is 32.3052 and 40.6983 respectively. The t -value testing the significance of means difference of techno pedagogical competency among male and female secondary school teachers are -2.333 which is not significant at both the levels of significance.

From the above interpretation of results, there exists no significant difference in techno pedagogical competencies between males and female teachers of secondary schools.

Hence the null hypothesis no.1 stating that "There will be no significant difference in Techno Pedagogical Competency of male and female secondary school teachers" is accepted.

HYPOTHESIS 2

There will be no significant difference in Techno Pedagogical Competency of government and private secondary school teachers

In order to test this hypothesis, mean and standard deviation of techno pedagogical competency of government and private secondary school teachers was calculated. The scores of teachers according to mean, standard deviation and t value in the table 2.1

Table 2.1

Mean, standard deviation of techno pedagogical competencies of government and private school teachers					
Type of School	**N**	**Mean**	**SD**	**SE_d**	**t value**
Private	100	141.230	27.0338	2.7034	**12.021**
Government	100	93.090	29.5451	2.9545	

(Significant at both levels of confidence)

A bar graph has been drawn to depict the mean scores of teacher techno pedagogical competencies of government and private school teachers.

Table 2.1 reveals that the mean scores of techno pedagogical competency of private school teachers is 141.23 and 93.09 that of government school teachers is. The standard deviation of private and government school teachers is 27.0338 and 29.5451 respectively. The t value testing the significance of means difference of techno pedagogical competency among male and female secondary school teachers is 12.021. In both cases, the values vary from each other accordingly. Therefore, there exist significant differences in techno pedagogical competencies of secondary school teachers of government and private school teachers.

Hence the null hypothesis no. 2 stating that "There will be no significant difference in Techno Pedagogical Competency of government and private secondary school teachers" is rejected. A significant difference in techno pedagogical competencies of government and private secondary school teachers is observed.

EDUCATIONAL IMPLICATIONS

Every research bears some educational implications. After conducting this study, we can draw out some implications.

Some important implications are given below:

1. This study will aid the teachers in realizing the importance of digital skill enhancement and direct them towards the improvement of their knowledge.
2. To aware teachers of the growing need to use technology in their lessons.

3. To convince teachers that techno pedagogical competency, if used to its full capacity can aid their lesson plans, and presentations and make their work easy.

REFERENCES

1. Ahmad, R. N., Khan, S. A., & Rehman, S. (2015). A comparative study to investigate the sense of teacher efficacy between male and female teachers. Asian Journal of Management Sciences & Education, 4(2), 29-35.
2. Andrews, J., & Lupart, J. L. (2000). The inclusive classroom: Educating exceptional children (2nd Ed.). Scarborough, ON: Nelson.
3. Appadurai, R., & Saraladevi, K. (2015). Teaching Aptitude and Teacher Attitude on Teacher Efficacy. International Journal of Innovative Research in Science, Engineering and Technology, 4(10), 10252-10261.
4. Cakir, R. & Yildirim, S. (2013). ICT teachers' professional growth is viewed in terms of perceptions about teaching and competencies. Journal of Information Technology Education, 12, 221-237.
5. Dash, B. N. (2004). The teacher and professional growth. Dominant Publishers and Distributors.
6. Gloria, R. & Benjamin, A. (2018). The attitude of teachers towards techno-pedagogy. International Journal of Engineering Technologies and Management Research, 5(4), 87-89.
7. Kaur, P., & Arya, D. S. (2019). Attitude towards information and communication technology among rural and urban primary and secondary school teachers of Punjab. International Journal of Trend in Scientific Research and Development, 3(3), 859-864.