

A Study on Technological Pedagogical Content Knowledge of High School Teachers in Chennai

K. Kalaimani¹ Dr. L. George Stephen²

¹Ph.D. Research Scholar, Registration No: PHDJU2018006, Department of Pedagogical Sciences, Tamil Nadu Teachers Education University, Chennai-97, Email: ksmdeen87@gmail.com Mobile: 73959 77535

²Assistant Professor, Department of Pedagogical Sciences, Tamil Nadu Teachers Education University, Chennai-97, India. Email: allen.anin@gmail.com Mobile: 94423 00951

ABSTRACT

The present study aimed to find out the level of the Technological Pedagogical Content Knowledge of high school teachers of Chennai and to compare the techno-pedagogical skills based on gender and stream of the subjects. Descriptive survey method was adopted for the study. The sample of the study consists of 30 high school teachers in Chennai. Data were collected through a validated tool constructed by the researcher with the help of the research supervisor namely Technological Pedagogical Content Knowledge (TPACK). The collected data were analyzed with the help of statistical techniques. The findings of the study revealed that there is no significant difference of high school teachers based on gender and stream of the subjects. The result of the study revealed that the levels of Technological Pedagogical Content Knowledge of high school teachers are moderate in nature.

Keywords: Technological Pedagogical Content Knowledge, high school teachers, gender stream of the subjects etc...

INTRODUCTION

In the 21st century, teachers have been using innovative technology as an important role in education. The National Council for Teacher Education has defined teacher education as a programme of education, research and training of person to teach from pre-primary to higher education level. A theory of learning that focuses on the importance of practice and the role of technology in scaffolding learning. The TPACK framework was introduced by Koehler and Mishra (2009). TPACK is a technology integration framework that identifies three types of knowledge instructors need to combine for successful integration of education technology. Every new tool provides a new opportunity for use with in the education society. The objectives of the study focused on the levels of Technological Pedagogical Content Knowledge of high school teachers.

STATEMENT OF THE PROBLEM

The statement of the problem is entitled “**A Study on Technological Pedagogical Content Knowledge of High School Teachers in Chennai**”.

OBJECTIVES

1. To find out the level of technological pedagogical content knowledge of high school teachers.
2. To compare technological pedagogical content knowledge of high school teachers based on gender
3. To compare technological pedagogical content knowledge of high school teachers based on stream of subject

HYPOTHESES

1. There is no significant difference in Technological Pedagogical Content Knowledge between male and female of high school teachers.
2. There is no significant difference in technological pedagogical content knowledge of high school teachers based on stream of subjects.

NEED AND SIGNIFICANCE

In the 21st century a classroom without technology is unbelievable. Nowadays, the students must be exposed to technology based instruction. The education system is now witnessing a paradigm shift from the

traditional chalk and on-board teaching to smart board teaching. Modern technology for teaching and learning in instructional instruction has now been transferred to smart classes. Utilizing information technology in communications and different teaching technologies with teaching methods has a very positive impact on teaching-learning process. Techno-pedagogical skills are the ways to make accessible and affordable quality education to all. The National Curriculum Framework (NCF, 2005), and XII five year plan (2011), emphasized to provide connectivity, valuable content and low cost computing devices to all the institutions of higher learning in the country. The New Education Policy (2020) suggest the formation of National Educational technology Forum (NETF) to provide a platform for the free exchange of ideas on the use of technology to enhance learning, assessment, planning, administration among the different universities.

OPERATIONAL DEFINITION

TECHNOLOGICAL PEDAGOGICAL CONTENT KNOWLEDGE

Literally, 'pedagogy' refers to the art and science of teaching. The word 'Techno' is derived from the Latin Word 'texere' which means to weave or fabricate. Combination of both the words 'techno-pedagogy' means weaving the technology into the teaching learning process. The dimensions of Technological Pedagogical Content Knowledge which includes Content Knowledge (CK), Pedagogical Knowledge (PK), Pedagogical Content Knowledge (PCK) Technological Knowledge (TK) Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), and Technological Pedagogical Content Knowledge (TPACK).

HIGH SCHOOL TEACHERS

The high school teachers are those who have completed their study in under graduate with B.Ed., in any recognized teacher education institutions.

METHODOLOGY

The present study was aimed to Technological Pedagogical Content Knowledge (TPACK) of high school teachers in Chennai, for which descriptive survey method was adopted.

POPULATION AND SAMPLE

The population of the study was the high school teachers were randomly selected. The sample consists of 30 high school teachers from various subjects such as science, social science and humanities.

DELIMITATION OF THE STUDY

1. The data was collected in Chennai city only.
2. The study has been restricted only with the demographic variables such as gender and stream of the subject.

TOOLS USED

Technological Pedagogical Content Knowledge (TPACK) tool was self-constructed and validated by the researcher with the help of research supervisor.

STATISTICAL TECHNIQUES

The statistical techniques both descriptive analyses such as mean, standard deviation and differential analysis t-test was employed.

ANALYSIS AND INTERPRETATION

Objective 1: The level of technological pedagogical content knowledge of high school teachers of high school teachers.

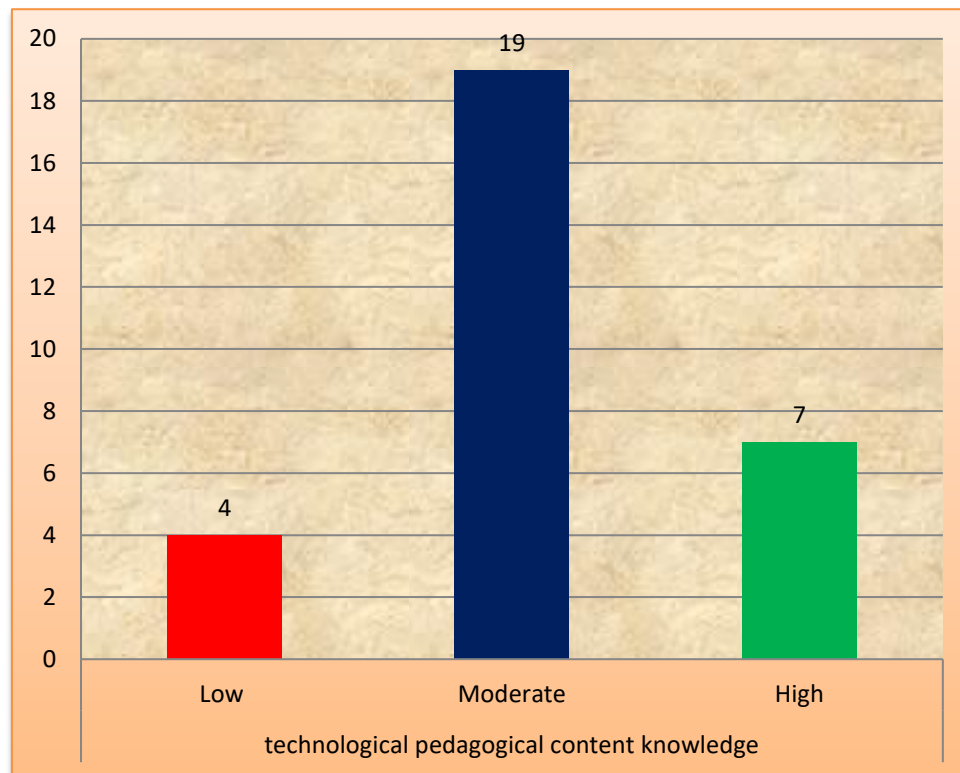
Table:1 Level of technological pedagogical content knowledge of high school teachers

Variable	Level	N	Percentage
Technological Pedagogical Content Knowledge	Low	4	13.33%
	Moderate	19	63.33%
	High	7	23.33%

Table: 1 shows that 13.33%, 63.33%, 23.33% of the sample have Low, Moderate, High levels of technological pedagogical content knowledge of high school teachers. Based on

the results, it can be concluded the level of technological pedagogical content knowledge of the majority of high school teachers are moderate (63.33%).

Figure 1: Level of technological pedagogical content knowledge of high school teachers



Hypothesis 1: There is no significant difference in technological pedagogical

content knowledge between male and female of high school teachers.

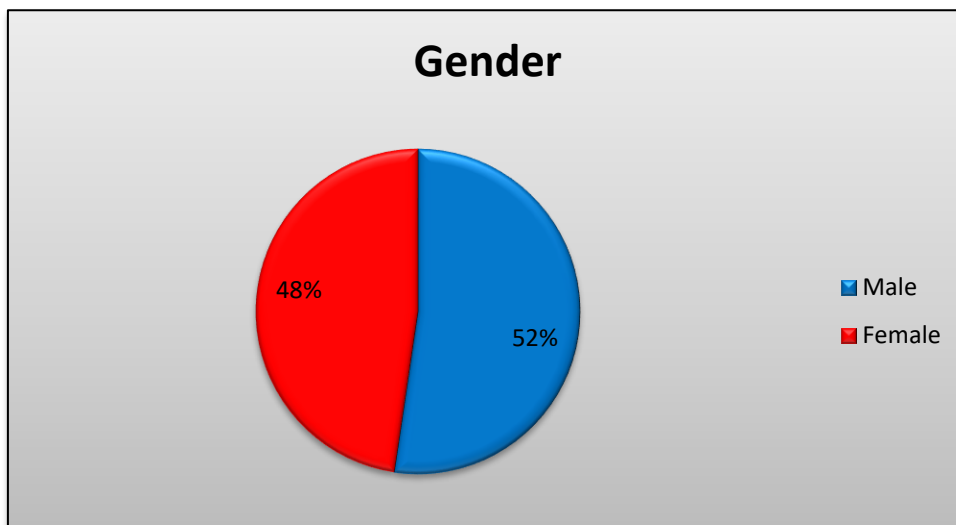
Table:2 Difference between male and female of high school teachers in technological pedagogical content knowledge

Gender	N	Mean	SD	t-test	df	P-value	Remark
Male	8	244.63	36.812				
Female	22	222.77	28.46	1.721	28	0.096	Not Significant

Table: 2 revealed that male high school teachers (Mean=244.63, SD=36.812)

were slightly better than female high school teachers (Mean=222.77, SD=28.46) in technological pedagogical content knowledge.

Figure 2: Difference between male and female of high school teachers in technological pedagogical content knowledge



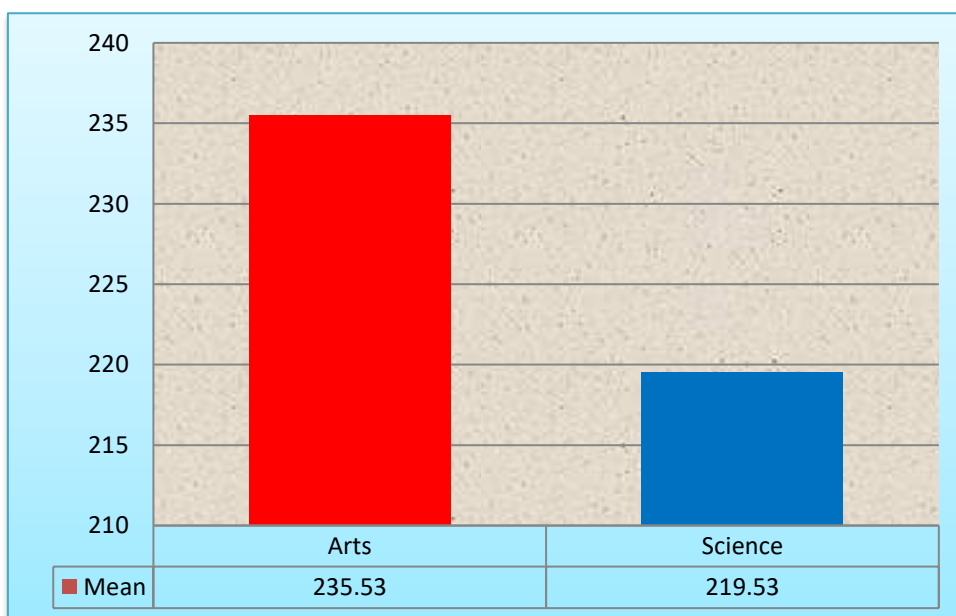
Hypothesis 2: There is no significant difference in technological pedagogical content knowledge of high school teachers based on stream of subject

Table:3 Difference in technological pedagogical content knowledge of high school teachers based on stream of subject

Gender	N	Mean	SD	t-test	df	P-value	Remark
Arts	17	235.53	31.91				
Science	13	219.53	30.443	1.387	28	0.176	Not Significant

Table: 3 depicts that arts stream of high school teachers (Mean=235.53, SD=31.91) were better than science stream of high school teachers (Mean=219.53, SD=30.443) in technological pedagogical content knowledge

Figure 3: Difference between arts and science stream of high school teachers in technological pedagogical content knowledge



MAJOR FINDINGS

1. The level of Technological Pedagogical Content Knowledge of high school teachers are moderate in nature.
2. There is no significant difference in Technological Pedagogical Content Knowledge between male and female of high school teachers.
3. There is no significant difference in Technological Pedagogical Content Knowledge of the high school teachers based on stream of the subjects.

DISCUSSIONS

1. The presents study revealed that the levels of Technological Pedagogical Content Knowledge of high school teachers are moderate in nature, **Contradicts** with the study of **Sanjukta Bhuyan and Marti Kumar (2020)**.
2. The study stated that there is no significant difference of high school teachers based on gender, **Corroborates** with the study of **Sanjukta Bhuyan and Marti Kumar (2020)**.
3. The study stated that there is no significant difference of high school teachers based on stream of the subject, **Corroborates** with the study of **Sanjukta Bhuyan and Marti Kumar (2020)**.

EDUCATIONAL IMPLICATIONS

1. The study will help the teachers to take care of the development of techno-pedagogical skills and competencies of high school teachers among students.
2. It will help the management to provide necessary infrastructural facilities like adequate classrooms, computers, internet and communication technologies for schools for smooth functioning.
3. It will help to plan well defined, defined educational policy integration of technology with different levels of teaching-learning process.

SUGGESTIONS

1. The present study was conducted in Chennai, which can be extended considering population at another place.
2. It was evaluating TPACK skills of 30 high school teachers, which can be extended to large no of samples.
3. It was conducted on high school teachers, further can be conducted the elementary teachers, higher secondary teachers, college teachers, and vocational teachers.
4. Influence of techno-pedagogical content knowledge with reference to other variables can be studied.

CONCLUSION

The research paper revealed that the level of Technological Pedagogical Content Knowledge of the high school Teachers is moderate in nature. The technology acts an important role in the 21st century; the teaching has been changing simple classrooms into virtual classrooms. Nowadays, the classroom without technology is impossible to the forthcoming students. The learning process without technology will make the students' learning outcomes tend to be low, because of monotonous and boring, if learning is supported by techno-pedagogy, the students would be more passionate in learning the subject. It creates learning and sharing culture where there are opportunities for staff to develop their technological skills.

REFERENCES

1. Koehler, M., & Mishra, P. (2009). What is technological pedagogical content knowledge (TPACK)? *Contemporary issues in technology and teacher education*, 9(1), 60-70.
2. Nabin Thakur (2015), a study on Implementation of Techno-Pedagogical Skills, Its Challenges and role to release at Higher level of Education, *American International Journal of Research in Humanities, Arts and Social Sciences*, 9(2), 182-186, 2328-3696.
3. National Education Policy 2020. <https://www.mhrd.gov.in/sites/upload>

[_files/mhrd/files/nep/NEP_Final_English.pdf](#)

4. P.Palanisamy et. al., (2020), Techno-Pedagogical Skills for Teaching-Learning Process in smart class, *Talent Development & Excellence*, 12(1), 4984-4994, 1869-0459.
5. Sanjukta Bhuyan and Marti Kumar (2020), Techno-Pedagogical Skills of Educational Students, *Scholarly Research Journals for Interdisciplinary Studies*, 8(62), 14554-14564, 2278-8808.
6. SK Monirul Islam (2020), Infusion of Techno-Pedagogy during Covid-19: Teacher's Perspective, *International Journal of Creative Research Thoughts*, 8(11), 3660-3670, 2320-2882.
7. www.google.com