

Perception of Pre-service Teachers Towards Practicing Value-Based Techno-Pedagogical Content Knowledge (VTPCK Model)

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Abstract

Human values are vital to promoting education. Moral and social values like humanity, honesty, compassion, equality, and culture are important in schools. Indian culture is rich with values and traditions that have been followed since immemorial. Indians are known for peace and *Vasudhaiv Kutumbakam* (all people on earth are family). For years a moral decline has been observed in children which makes them diverted from the purpose of education. In 2015, the government of India adopted Agenda 2030 for sustainable development, and since the impact initiation can be observed. The human personality is incomplete without the essence of moral and social values. The sense of decision-making, code of conduct, and character-building make us unique and superior to computers and AI. The National Education Policy 2020 (India) recommends the central role of teachers in practicing and extending the legacy of Vedas (sacred texts), rich in human values to their students. This research investigates pre-service teachers' perceptions of the Value-based Techno-Pedagogical Content Knowledge (VTPCK) model and its effectiveness in integrating values, technology, pedagogy, and content in teacher education. Using a quasi-experimental design, the study assesses the impact of VTPCK workshops on teaching competency and moral value integration among pre-service teachers. The results indicate significant improvement in pedagogical strategies and value-driven teaching practices, emphasizing the model's relevance in modern teacher training programs.

Keywords: Values, Technology, Pedagogy, Content Knowledge, Teachers

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Introduction

One of the most pressing issues of our time is the decline in moral values among our youth. In the past, the majority of teenagers exhibited moral principles and grace. The majority of the young people were then taught decency, propriety, honesty, consideration, courtesy, respect, and righteousness at an early age. From an ethical perspective, human behavior can be classified as morally right or wrong, good or bad, or immoral. The prevailing moral norm in our society always guides these decisions. Morality is not a rule that our fellow humans force upon us. It is a law that we can comprehend and decide to follow since we can see that it makes sense. In general, morality is the absence of vices like hatred, jealousy, greed, lying, etc., as well as honesty of character and fairness of attitude. A value-based society is created when individuals work together harmoniously, play a healthy synthesis, and recognize when differentiation is appropriate. However, as the majority of the younger generation gradually disregards these ethics, these moral values are gradually eroding over time. Young people today spend more time on their phones, chatting, and using Facebook and WhatsApp than they did with their elders, who once instilled moral values in them. They discuss important topics like politics and corruption, but they themselves don't have time for the visitors, a true celebration of the festival, or showing respect for their elderly grandparents. The educational institutions such as the family, school, club, etc.

The Indian Knowledge System states that among many other values, students should be taught gratitude, honesty, sharing, empathy, compassion, cooperation, respect, truthfulness, equality, culture, enterprise, fearlessness, contribution, faith, health, benevolence, oneness, humility, zeal, courage, and humanism.

One common factor that can change the course of events and help the educational system move past its current state of rigidity and aimlessness is to become a moderate, flexible, multidisciplinary, creative, and expertise-focused system that can produce competent, creative, talented, employable, and moral students. The teacher is this typical component. (Kasturirangan, 2020)

The National Education Policy (NEP) 2020 emphasizes teachers' critical role in transforming education by integrating values, pedagogy, and technology. A collaborative, constructivist approach to learning with value-rich content, a multidisciplinary and integrated approach, extensive use of technology, and ongoing improvement of teachers' pedagogical skills are all recommended by India's National Education Policy 2020.

In this context, the VTPCK model offers a framework for training teachers to embed moral values into pedagogical practices using technology. This study aims to evaluate the perceptions of pre-service teachers toward the VTPCK model and its influence on their teaching competencies.

Literature Reviews

Research on TPACK promoting the ICT instructional process for teachers with interactive whiteboard instruction implementation was carried out by *Koh, and Divararan* (2013) from Nanyang Technological University in Singapore. For pre-service teachers to integrate ICT with content subjects and IWB, this study aimed to create instructional materials for their TPACK development. These materials included tutor modeling, hands-on exploration, and group-based design. The pre-service teacher developed TPACK with the help of GBD experiences. *Miguel-*

Revilla (2020) and colleagues from the University of Valladolid, Spain, have jointly carried out a study on evaluating social studies teachers' digital competency using the TPACK-21 model. A crucial component of pre-service teacher preparation today is educators' digital competency. Therefore, 21st-century competencies were considered in addition to TPACK. Data collection and analysis were conducted using a quantitative approach and the TPACK-21 questionnaire. Study participants included two-year social studies and secondary education candidates. After evaluating seven factors, the results showed that the TPACK and Questionnaire 21 were adequate for making positive progress. The suggested PK and conceptual orientation of instruction have proven beneficial. *Atun and Irmida* (2018) studied the impact of the TPACK approach on social skills and science literacy at Yogyakarta University in Indonesia. The population was s, and a quasi-experimental design was examined. TPACK: An Emerging Research and Development of Tool for Teachers and Educators was the subject of a study in 2011 by *Baran* and colleagues from British University. The TPACK construct was defined in this study, along with several ongoing research and development projects that make use of the framework. It was determined that TPACK improves the ability to design and test powerful technology approaches and provides clarity to any project being developed. Pre-service teachers' TPACK was investigated by *Karaca* (2015) of Marmara University in Istanbul based on a number of factors, including gender, grade level, graduation school type, technology ownership, etc. 142 pre-service teachers from the Department of Computer Education and Technologies were included in the study. As a result, this study offered insightful information to help teachers better integrate technology beginning with their undergraduate degrees. A study conducted by *Das Mitra* (2021) of Gobardanga Hindu College in West Bengal examined the potential for TPACK to be implemented in India's two-year pre-and in-service teacher education program. The study's goal was to determine how widely TPACK is being used in teacher education. It was determined that a mixed-method study that included interview tool analysis of books, journals, and documents was legitimate. A study on creating TPACK for Animal Physiology lessons for pre-service teachers was carried out by *Pusparini* (2017) and two other Bandung researchers. Soloman 4-group, an experimental group. *Kaur* (2020) investigated the role of internationalization of moral identity and religiosity as effective predictors of prosocial behavior. For the study, 400 adult females were recruited. The tool serves as a prosocial behavior personality battery, moral identity inventory, and religiousness questionnaire. ANOVA was used to analyze the data, and the results showed that more religious people have higher levels of social responsibility, empathy, and perspective-taking skills, all of which combined to have an impact on moral reasoning. A study by *Ghorai, Khan, and Mohakud* (2021) examined the impact of family background-related variables on moral education in higher secondary students in West Bengal, India. These factors included family types, caste, occupation, income, and guardian educational qualifications. A test created by B was used to assess moral values in a study involving 444 students. M. Benjamin. SPSS version 2.1 was used to analyze the data using mean, SD, T-test, and ANOVA. In the case of the family background factors mentioned, the result was significant. Together, *Ribeiro* (2020) and four other researchers from Brazil and other nations have conducted research on the topic I found reprehensible: Medical students encounter troubling moral quandaries. The purpose of this study is to examine the nature of moral quandaries, students' emotional reactions to them, and how these dilemmas affect their professional growth. Through interviews, a cross-sectional qualitative study was conducted.

India faces a decline in moral values among youth, as reflected in increasing cases of juvenile delinquency and unethical behaviour. While previous efforts and from the literature reviews to instill values in education have yielded limited results, there remains a need for innovative teacher training models that integrate value-based education with modern pedagogical and

technological tools. The VTPCK model addresses this gap by offering a structured approach to teacher education.

Research Objectives

RO₁: To design and implement a workshop based on the VTPCK model for pre-service teachers.

RO₂: To study the perceptions of pre-service teachers on the VTPCK model post-workshop.

Research Hypothesis

H₁: The VTPCK model will positively influence pre-service teachers' ability to integrate moral values into teaching practices.

Research Methodology

A quasi-experimental design was employed, complemented by a survey to collect qualitative and quantitative data. The study involved 38 pre-service teachers enrolled in a Bachelor of Education program in Delhi, India. Participants were selected through random sampling. The research tools were used to gather information pre and post-intervention, i.e., the 5-day workshop on the VTPCK model. The tool was a *self-made VTPCK* questionnaire with 45 items across seven categories, measuring value-based technological, pedagogical, and content knowledge. A *Moral Values Scale (MVS)* to assess the integration of moral values in teaching practices. An achievement test and *Follow-up interviews* were taken to gather qualitative insights into participants' experiences with the VTPCK model.

Data Collection

1. *Pre-Test*: Participants completed the VTPCK Tool and MVS and achievement pre-test before the workshop.
2. *Workshop Implementation*: A five-day workshop introduced the VTPCK framework, covering topics such as Value-based pedagogical skills, Technological tools for teaching, and integrating moral values into content delivery. The workshop was followed by a simulation class activity.
3. *Post-Test*: Participants retook the VTPCK Tool and MVS and achievement post-test after the workshop.
4. *Follow-Up Interviews*: Semi-structured interviews captured participants' perceptions and reflections.

Data Analysis

Quantitative data were analyzed using paired t-tests and descriptive statistics to measure pre- and post-workshop differences. Qualitative data from interviews were thematically analyzed to identify recurring perceptions and challenges.

Table 1: Table Showing Comparison of Means of Achievement Scores of Students Pre and Post-workshop

Comparison of Means of achievement test scores of Experimental group pre and post-intervention					
GROUPS	N	MEAN	S.D.	t-value	significance at 0.05 level
PRE TEST EXPERIMENTAL	20	38	6.687	2.8	significant
POST TEST EXPERIMENTAL	18	32			

Value-based Techno-Pedagogical Content Scale

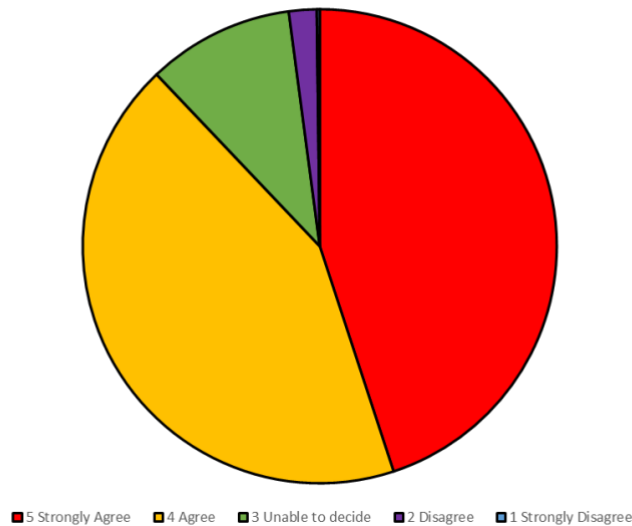


Figure 1: Total Percentage of Views of Pre-service Teachers on Value-Based Techno-Pedagogical Content Skills Under All 7 Categories

Table 2: Table Showing the Result of the Pre-service Teachers on the Moral Value Scale

Strongly Obligated	Weakly Obligated	Not Obligated
72%	17%	11%

Results

1. *Improvement in Competencies:* Participants demonstrated significant improvement in value-based teaching strategies, technological integration, and pedagogical skills ($p < 0.05$).
2. *Positive Perceptions:* 85% of participants agreed that the VTPCK model enhanced their ability to integrate moral values in teaching. 78% reported increased confidence in using technology for content delivery.
3. *Qualitative Insights:* Participants appreciated the emphasis on values such as empathy, equality, and truthfulness. The Challenges included the initial unfamiliarity with some technological tools and the need for ongoing support.

Conclusion

This study demonstrates the VTPCK model's potential to revolutionize teacher education by integrating moral values, technology, and pedagogy. The model equips pre-service teachers with the competencies required to meet modern educational challenges while fostering a value-driven teaching culture. Youth moral values are eroding, as evidenced by the rise in juvenile delinquency and unethical behavior. There is still a need for creative teacher training models that combine value-based education with contemporary pedagogical and technological tools, even though prior attempts and literature reviews to instill values in education have produced mixed results. This gap is filled by the VTPCK model, which provides an organized method of teacher preparation. Future research should explore longitudinal impacts and scalability across diverse educational settings.

Discussion and Future Suggestions

The findings support the efficacy of the VTPCK model in fostering holistic teacher development. By combining moral values with technological and pedagogical skills, the model addresses contemporary educational needs. The significant improvements observed in participants' competencies align with previous studies emphasizing value-based education's transformative potential. The challenges in the implementation of this model were the resource constraints, such as limited access to advanced technological tools and resistance to change among participants accustomed to traditional teaching methods. The suggestions for the future are:

1. We should Integrate the VTPCK model into teacher training curricula nationwide as per the results found, it is an effective model and can be one of the models for future eras.
2. To Provide continuous professional development programs to support teachers adopting value-based pedagogies.
3. To Develop digital repositories of value-based content for easier access.

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