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Techno Pedagogical Skill of Trainee Teachers of Purba Bardhaman District West Bengal

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ABSTRACT:
In the era of Artificial intelligence the role of prospective teachers, who are both learners and educators simultaneously. The National Education Policy (NEP) 2020 emphasizes the integration of technology with teaching. The mere addition of technology does not automatically enhance the learning experience. Instead, it's about how educators can integrate technology to transform and enrich the learning process. This concept is particularly relevant when considering the skills future teachers need to develop. They must be adapt at using technology, but more importantly, they must understand how to use it to facilitate learning and engage students. This involves a deep understanding of the subject matter, knowledge of how students learn, and the ability to use technology to enhance learning and teaching. This combination of skills is crucial for the educators of tomorrow, enabling them to effectively use technology as a tool to foster a more interactive and engaging learning environment. Pedagogy, the art of teaching, shapes the actions, judgments, and strategies of teachers. It takes into account learning theories, understanding of students' needs, and the individual backgrounds and interests of students. In today's world, digital literacy and digital intelligence are not just desirable but essential competencies. In this Study data are collected from teachers training Institutes of Purba Bardhaman District. Focus of this study is to measure of the Techno pedagogical competency in respect of gender and locality among the trainee teachers.

Keywords: Techno Pedagogical Skill , Scientific Temper, Attitude, Artificial Intelligence.

INTRODUCTION:

Educators in the digital age are required to possess a range of skills, including technological proficiency, pedagogical insight, and comprehensive subject knowledge. This shift necessitates a thorough assessment of a prospective teacher's preparedness to address the multifaceted challenges of contemporary education. The convergence of technology and pedagogy has become essential to the teaching and learning experience, making it imperative to evaluate the techno-pedagogical skills of future educators. This integration, known as 'techno-pedagogy', has transformed classroom dynamics. The availability of technical tools, online educational resources, and various platforms has ushered in a new educational era. Aspiring teachers must navigate this evolving landscape, which requires proficiency in both traditional teaching methods and innovative technological applications. Cultivating scientific reasoning and meta-cognitive abilities among students is crucial for enhancing their critical thinking and problem-solving skills. In this context, it is vital to understand how the techno-pedagogical competencies of future teachers correlate with their ability to foster scientific reasoning and meta-

cognitive skills. The twenty-first century is characterized by the sound influence of data and information technology in every area of human existence and our students are now called 'Digital Natives'. The influence of digital technology extends deeply into teacher education, where the integration of information and technology is essential. This integration has opened a new paradigm in teacher education, creating deep and effective learning experiences for prospective teachers, their educators and students **(Bhattacharjee and Deb, 2016).** Switching to digital educational practices from the traditional system is the need of the current and future, so here changing the traditional role of teachers into that of facilitators who are competent with digital technology and digital literacy. Technology should be a part of teacher education programmes so that teachers are trained for the changing world of tech-enhanced teaching and can meet the demands of the 21st century. To prepare for the current students and future citizens, teachers have to learn a lot more than the basics. They must be good at thinking critically, using what they know in different situations, understanding and working with data, coming up with new thoughts, communicating well, working as a team to solve problems, and making proper decisions. These skills help teachers adjust and do good even when things keep changing around them Also, because technology is so important in schools today, our teaching training programs should ensure their trainee teachers are competent with digital instructional tools and platforms. Teaching is a noble profession; teachers need to share their skills and knowledge with students and make them competent to be a driving force of society and nation-building. Pedagogy is a big word that means "the art and science of teaching". It's important for training teachers nowadays. When we use technology in teaching, it helps create better classrooms that match the objectives and desirable outcomes in education. This means using the best ways to make the learning in the class more effective **(Gloria and Benjamin, 2020**). In short, today's world combines information and technology closely, changing how teachers are trained in big ways. Incorporating technology within teacher education is not merely a choice; it is an essential step toward enhancing the learning experience, preparing educators for the future, and endowing them with the skills requisite for thriving in an information-driven world. This shifting is underpinned by pedagogical strategies that focus on refining and redefining teacher training programs, strengthening the development of indispensable competencies vital for effective teaching and learning in the 21st century. While integrating technology into pedagogical practices the teacher should possess the capacity to regulate his or her thinking and student's thinking. Same time the teacher should be critical-minded and open-minded. The former is related to Meta-cognitive skills and the second is related to scientific temper. Teachers should be trained to plan, implement, monitor, and evaluate their thinking then only they can successfully integrate technology with pedagogical practices.

REVIEW OF RELATED LITERATURE

Research is a journey that weaves its way through a vast ocean of knowledge, built over time by the tireless efforts of humans. It's a voyage that one cannot undertake without first diving into the existing body of work related to the specific subject of inquiry. Initiating a study necessitates that any researcher conducts an exhaustive review of pertinent information sources such as books, dissertations, theses, journals, and other materials related to the research problem, as a fundamental preliminary step. The Review of Literature is like a map of this vast ocean. It's a comprehensive survey of existing works, aiming to assess and synthesize the key aspects of current knowledge within a particular field of study or relevant to the specific research topic. Often presented as a bibliographic essay or an annotated list of references, this review highlights the most significant works in the domain. In scholarly journals that

present original research, each article typically begins with a section dedicated to evaluating previously published literature relevant to the subject, followed by a detailed list of references.

Malhotra (2023) conducted a study on the occupational stress of senior secondary school teachers in relation to their professional commitment and techno-pedagogical competence. The findings indicated that physical education teachers had average occupational stress, techno-pedagogical competency, and professional commitment. The study also found that these factors were not significantly influenced by gender and years of teaching experience. Furthermore, there was no significant relationship between occupational stress, professional commitment, and techno-pedagogical competence of these teachers.

Paul and Roy (2023) reported two key findings from their research. First, they found a difference in the level of awareness of various ICT devices between male and female postgraduate students. However, no such difference was observed when comparing urban and rural postgraduate students. Second, the study revealed a disparity in proficiency in using various ICT devices between male and female postgraduate students. Yet, there was no significant difference in the proficiency of using various ICT devices between urban and rural postgraduate students. These findings suggest that while gender may influence the awareness and proficiency levels of ICT device usage among postgraduate students, the geographical location (urban or rural) does not appear to have the same effect.

RATIONALE OF STUDY:

Studies are essential for shaping effective teacher education programs, ensuring new educators are well-equipped to use digital tools in enhancing learning experiences. By understanding the competencies of prospective teachers, educational institutions can tailor their training programs to better prepare educators for a technology-rich teaching environment, ultimately leading to improved student engagement and learning outcomes in an ever-evolving digital world. "New technologies involving artificial intelligence, machine learning, block chains, smart boards, handheld computing devices, adaptive computer testing for student development, and other forms of educational software and hardware will not just change what students learn in the classroom but how they learn, and thus these areas and beyond will require extensive research both on the technological as well as educational fronts**." (NEP 2020)** . It is imperative that our educators undergo specialized training to develop what is known as Techno-pedagogical competency. This competency is crucial for every trainee teacher to enhance their ability to blend technology into teaching and learning environments effectively. With this integration, teachers can reach a wider audience, transcending geographical barriers, and educate a large number of students within a limited timeframe. However, it's important to note that if a trainee teacher lacks a scientific approach, there's a high risk of spreading misinformation, misconceptions, and superstitious beliefs among a large student body. Essential characteristics of a techno pedagogue include critical-mindedness, open-mindedness, respect for evidence, and the capacity for suspended judgment, a willingness to revise opinions, a questioning attitude, and objectivity. Therefore, assessing the Techno-pedagogical competency of prospective teachers in relation to their scientific temper is critical. Metacognition, or the process of thinking about one's own thinking, is another key area. Metacognitive skills, which encompass planning, implementing, monitoring, and evaluating one's own thought processes and understanding the thoughts of others, are integral. Without these skills, the incorporation of technology into pedagogical practices may not yield beneficial results. Consequently, conducting survey studies to evaluate the Techno-pedagogical competencies of prospective teachers in relation to their gender and locality. In the age of artificial intelligence, addressing the digital divide among

educators is essential. Understanding and addressing these disparities is crucial, necessitating comprehensive studies that consider demographic variables such as gender, and locality. These studies will aid in formulating strategies to bridge the digital divide and ensure equitable access to technological resources and training for all educators.

OBJECTIVES OF THE STUDY:

Objectives of the Study refer to the specific goals or purposes that a research study aims to achieve. These objectives provide direction and focus, ensuring that the research is aligned with specific aspects of the research problem. The objectives of the present study have been given below.

To assess whether the Gender, and Locality influence Techno pedagogical competencies among Trainee teachers.

HYPOTHESIS OF THE STUDY

H01: There is no significant difference between Female and Male Trainee teachers with their Techno-Pedagogical competency.

H02: There is no significant difference between Rural and Urban Trainee teachers with their Techno-pedagogical competency.

METHODOLOGY

POPULATION AND SAMPLE: Trainee teachers of Purba Bardhaman region are considered as population. 100 trainee teachers were selected as a sample of the study. That was performed by using as a simple random sampling technique.

TOOLS:

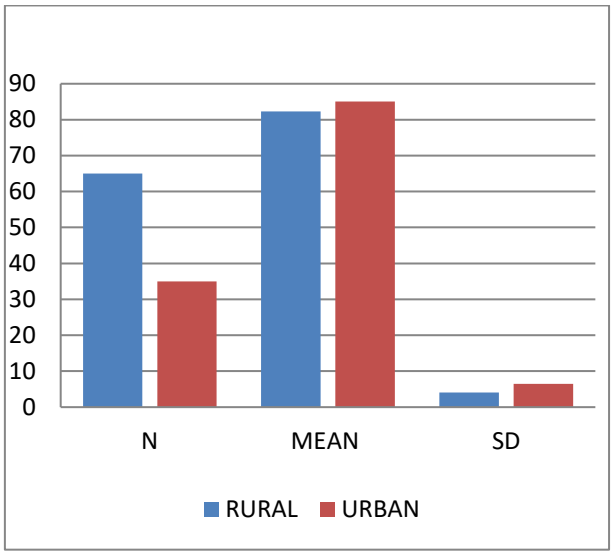
Techno-Pedagogical Competency Scale, created by Rajasekar and Sathiyaraj, used to evaluate Techno-Pedagogical Competency of teachers. This is a Likert type 5 point scale .All the statements were positively worded with respect to techno-pedagogical competency.

DATA ANALYSIS AND INTERPRETATION:

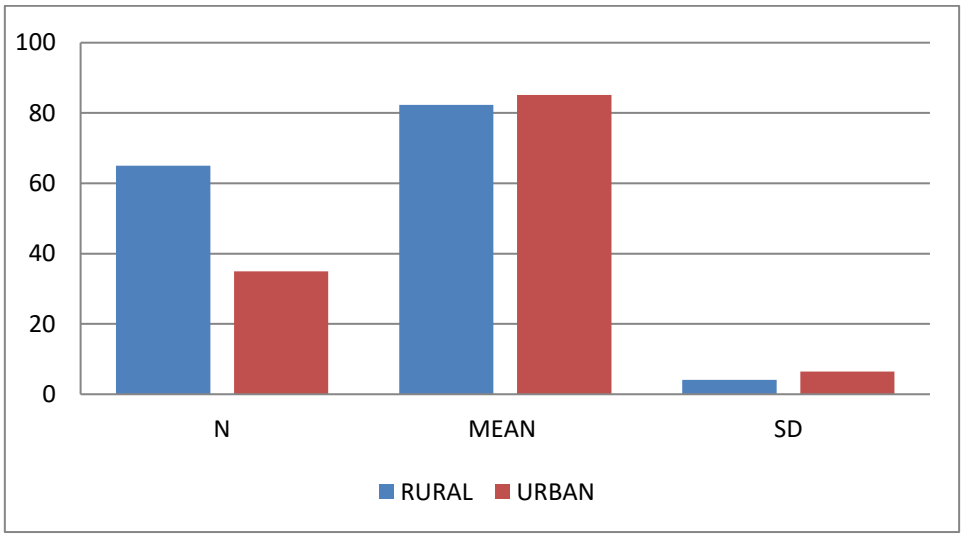
Hypothesis	Variables	Sub variables	N	MEAN	SD	t value	Observation at 5%level
H01	GENDER	MALE	60	84.49	6.19	0.795	NS*
		FEMALE	40	83.53	5.46		
H02	LOCALITY	RURAL	35	82.31	4.06	2.29	S*
		URBAN	65	85.09	6.50		

***NS = Not Significant**

***S = Significant**



MEAN, SD, N, IN RSEPECT WITH GENDER



MEAN, SD, N IN RESPECT WITH LOCALITY

Interpretation

Degree of freedom (df)=98 .

In case of H01,

The table value is 1.98 . The calculated value **0.795**. The calculated value is less than the table value , it means it **is insignificant**. So **null hypothesis (H01) is accepted.**

In case of H02,

The table value is 1.98 . The calculated value 2.29. The calculated value is greater than the table value , it means it is **significant**. So **null hypothesis (H02) is rejected.**

Findings of the Study

1. In first hypothesis the calculated value is less than the table value, it means null hypothesis is accepted. There is no significant differences between male and female in relation to their pedagogical competency.

2. In second hypothesis the calculated value greater than the table value which means null hypothesis is rejected. There is significant difference between Rural and Urban trainee teachers in respect to their Techno Pedagogical Competency.

Conclusions:

The Present study revealed that Trainee Teachers of the Purba Bardhaman District has no difference between male and female trainees in Techno pedagogical competency but in respect of their locality there is difference between trainee teachers in Techno pedagogical competency.

It indicted that there is digital divide between rural and urban trainee teachers of Purba bardhaman District Region under the state of west Bengal. But in the recent century 21st century skill like scientific temper, meta cognitive skill , technological advancement is necessary for quality education which is very essential for sustainable development of the society. In recent time technologically sound student preparation is very much necessary , otherwise they are not able to adapt with global scenario. For this reason Technologically efficient with sound pedagogical skill teacher can able to make globally competent student .So Government should take initiative for techno pedagogical advancement of the trainee teacher. Because in future these prospective teachers will go to the school and teach the student make the valuable human resource of the country.

Suggestion for Further Research:

Research can be conducted in future to find out the main reason that causing digital divide between urban and rural trainee teachers.

BIBLIOGRAPHY

1. Bhattacharjee, B., & Deb, K. (2016). Role of ICT in 21st century's teacher education. International Journal of Education and Information Studies, 6(1), 1–6.
2. Gloria, R., & Benjamin, A. E. (2020). Attitude of teachers towards techno-pedagogy. International Journal of Engineering Technologies and Management Research, 5(4), 87–89. doi:10.29121/ijetmr.v5.i4.2018.212.
3. Thakur, N. (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, 15(154), 182–186.
4. Government of India. (2020). National Education Policy 2020. Ministry of Human Resources and Development https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf.
5. Vajargah, K. F., Jahani, S., & Azadmanesh, N. (. (2010). Application of ICTs in teaching and learning at university level: the case of Shahid Beheshti University. The Turkish Online Journal of Educational Technology, 9(2), 33–39.
6. Chattopadhyay, M., & Sarkar, M. (2023). Techno-Pedgogical Cmpetency Level Among Secondary School Teachers in Malda District in West Bengal. Journal of Emerging Technologies and Innovative Research (JETIR) , 10(6), 79–86. Retrieved from https://www.jetir.org/papers/JETIR2306512.pdf.
7. Hassan, M. (2024). Delimitations in research - types, examples and writing guide. Retrieved January 17, 2024, from Research Method website: https://researchmethod.net/delimitations.

8. Malhotra, D. (2023). Occupational Stress of Senior Secondary School Teachers in Relation to Their Professional Commitment and Techno Pedagogical Competence (K. R. Mangalam University, Haryana). Retrieved from https://shodhganga.inflibnet.ac.in/jspui/handle/10603/551230.
9. Paul, D., & Roy, S. K. (2023). A Study of ICT Awareness, Proficiency, and Usage among Post-Graduate (PG) Students. American Journal of Education and Technology , 2(2), 108–115. https://doi.org/10.54536/ajet.v2i2.1656.
10. Malla, H. A. (2023). Techno Pedagogical Competence Work Motivation and Teacher Effectiveness of Higher Secondary School Teachers with Special Reference to Their Stream and Type of School (University of Kashmir, Jammu & Kashmir). Retrieved from https://shodhganga.inflibnet.ac.in/jspui/handle/10603/491585.
11. Setua, C. (2022). Effectiveness of Techno-Pedagogical Skills of Secondary School Teachers on Online Teaching during Covid-19 Pandemic. Journal of Educational Studies Trends and Practices, 12(1), 171–183.
12. Eswari, P. J. (2022). higher secondary students achievement in physics in relation to science interest scientific temper and home environment (Annamalai University, Tamil Nadu). Retrieved from http://hdl.handle.net/10603/354860.
13. Sharma, M., & Sharma, R. R. (2021). Techno-Pedagogical Skills of Teacher Trainees Belonging to Arts and Science Academic Streams. Towards Excellence, UGC-Human Resource Development Centre Gujarat University, 13(2). Retrieved from https://hrdc.gujaratuniversity.ac.in/Publication/article?id=3658.
14. Lambot, G. V., & Yango, A. R. (2023). Educational Motivation, Teachers' TechnoPedagogical Competence in the City Schools Division of Laguna. Technium Social Sciences Journal , 9(2), 33–39.
15. Gokbulut, B. (2021). The Relationship between Teachers' Technostress and Their Techno Pedagogical Competence. KırşehirEğitimFakültesiDergisi, 22(1), 472–496.
16. Lyonga, N. A. N., Moluayonge, G. E., & Nkeng, A. J. (2021). A study of techno pedagogical skills and teachers' performance in HTTTC Kumba, Cameroon. Cameroon. European Journal of Education and Pedagogy, 2(1), 46–50.
17. Senturk, S. (2021). The Relationship between Individual Innovativeness and TechnoPedagogical Levels of School Administrators and Teachers. Education Quarterly Reviews, (4), 555–570.
18. Muhammad, M. A., Guerrero, M., & Jose, A. (2021). Techno-pedagogical skills for 21st Century Digital Classrooms: An extensive literature review. Education Research International, 2021, 1–12. doi:10.1155/2021/8160084.
19. Terzi, R. (2020). The impact of understanding learners and techno-pedagogical competency on effective learning environments by designing the instructional process. Turkish Journal of Education,15(154), 182–186.
20. Best, J. W., Kahn, J. V., & Jha, A. K. (2018). Research in Education (10th ed.). Noida 201301, Uttar Pradesh, India: Pearson.
21. Rajashekar, & Sathyaraj. (2013). Teacher's Techno Pedagogical Competence Scale. National Psychological Corporation. Agra, Uttarpradesh.