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Techno-Pedagogical Competence among the B.Ed. Trainees

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ABSTRACT

Techno-Pedagogical Competence can play a major role for teachers in their professional growth and for shaping the future of the nation. The level of achievement of learner is determined by teacher's techno-pedagogical competence. In student centric classrooms, the role of the teacher changes to that of a facilitator and as a resource person. With the use of technology, the teacher can extend his/ her role beyond the classroom. Teacher education institutions also need to develop strategies and plans to enhance the teaching-learning process within teacher education programmes and to assure that all future teachers are well prepared to use the new tools for learning. So, a lot of efforts should be made to improve the teacher's education. This study aimed to assess the Techno-Pedagogical Competence among B.Ed. Trainees in Pudukkottai District. It was adopted by normative survey technique; this study was conducted with the sample of 275B.Ed. Trainees from various Colleges of Education. A scale on Techno-Pedagogical Competence Scale (TPCS) was developed by the investigators. Descriptive and differential statistics were used for the analysis of the data. The findings revealed that the level of Techno-Pedagogical Competence among student-teachers was found to be at average. The Science optional B.Ed. Trainees have better than the Language optional B.Ed. Trainees towards Techno-Pedagogical Competence, besides Techno-Pedagogical Competence among Rural area B.Ed. Trainees was low, when comparing with urban B.Ed. Trainees. Alternatively, the demographic variables like Gender and Educational Qualification do not differ significantly with respect to their Techno-Pedagogical Competence.

Keywords: Techno-Pedagogical Competence, B.Ed. Trainees Colleges of Education.

INTRODUCTION

Techno-Pedagogical Competence has brought profound changes to almost all the aspects of our lives in recent years. Teacher education is a programme related with teacher proficiency and competence that would make them competent adequate to face innovative challenges in the education (Cholin, 2005; Mehta and Kalra, 2006).Nowadays the field of education is not only limited with books but has broadened in various new horizons. The teachers face uncountable number of challenges in their day-to-day classroom teaching. They are to be well equipped with the pedagogical competence in the use of technology and this also enhances the quality of learning and teaching. The UNESCO World Education Report (1998) stated that the new technologies challenge traditional ideas of both learning and teaching and by reconfiguring how teachers and learners increase access to technological, pedagogical knowledge, which may have the potential to renovate teaching and learning practices. UNESCO (2002), "Teacher education institutions may either assume a prime role in the transformation of knowledge in students, be left behind in the swirl of rapid technological change. Therefore, Ministry of Human Resource development, Government of India has initiated scheme named "The National Mission on Education through Information and Communication Technology" (NMEICT), to aware the educationist about potential of Techno-Pedagogical Competence in Learning and Teaching for enhancing achievement. Furthermore, MHRD's Twelfth five year plan document for Teacher Education is ICT integration in Teacher Education. The plan document recommends the adoption of free and open technologies to enable teachers to collaborate with one another to create digital learning resources.

Similarly, IGNOU's learning resource repository, eGyanKosh, initiated in 2005 with the intention of digitizing self-instructional material, has emerged as one of the world's largest repositories, with more than 40,000 self-instructional text materials, and around 2,000 video lectures covering over 2,200 of the university's courses. The repository has become very popular in a short time and is being used the world over by student and

teacher communities for its rich content. Also, the project 'SWAYAM PRABHA has been launched by MHRD, It is a collection of 32 DTH channels dedicated to telecasting of high-quality educational programmes on 24x7 basis using the GSAT-15 satellite. Whereas, SWAYAM involves Massive Open Online Courses (MOOCs) compliant e-content (Video and text) and building a robust IT platform. The National Council for Teacher Education Act (No.73 of 1993) has been enacted with a view to achieving planned and coordinate development of the teacher education system throughout the country. Almost all state and central government agencies have adopted a liberal policy of encouraging and supporting Techno-Pedagogical Competence curricula in pre-service teacher training as recommended by the UGC. The NCERT has taken an initiative to make Techno-Pedagogical Competence and its literacy a compulsory one in the pre-service course in Teacher Education. The major objective of this course is to enable the teacher trainees to effectively use Techno-Pedagogical Competence in learning, teaching and use multimedia for preparing lesson plans, document creation, communication and dissemination of information, using electronic multimedia. In that way, the present study makes its attempt to ascertain the level of Techno-Pedagogical Competence among student-teachers in Colleges of Education.

INSIGHTS GAINED FROM REVIEW OF LITERATURE

Muthuchamy (2010) analysed higher secondary students' perception towards ICT. The study revealed that students studying in rural and urban schools differed significantly in their perceptions towards ICT. Indeed, ICT can pose certain challenges especially in the rural areas which need to be addressed. Combining ICT in rural development can speed up the development process and it can also fill the gaps between the educationally and technologically backward and advanced sections of the society. According to Erdogan (2011), "Teachers should learn not only how to use technology to enhance traditional teaching or increase productivity, but also should learn from a student-centered perspective, how Techno-Pedagogical Competence can be incorporated into teaching and learning effectively. Hence, teachers keep an open mind about Techno-Pedagogical Competence in more creative and productive ways in order to create more engaging and rewarding activities and more effective lessons". Angadi(2015) stated that male and female as well as science and language optional teacher trainees have significantly differ in their attitudes towards Techno-Pedagogical Competence. It also has found that the knowledge of Techno-Pedagogical Competence will be highly helpful in the development of educational institutions. Vermaet et.al., (2018) explored that there is significant difference between male and female faculty members towards Techno-Pedagogical Competence knowledge. Male faculty members were more conscious about Techno-Pedagogical Competence as compared to female faculty members. The conclusions of this study are also proving that there was much significant variance among female faculty and girls' students towards Techno-Pedagogical Competence knowledge. Female faculties were ahead when compared to girl's student in understanding of Techno-Pedagogical competence knowledge. TochukwuandHocanm (2019) found that the students of Information Technology of Eastern Mediterranean University (EMU) in Northern Cyprus. The analyses showed that there was a significant difference between male and female respondents on their awareness of that use of Techno-Pedagogical Competence tools, where female students proved to be more active on the adoption of such tools. In addition, a significant difference was also observed between students' age where the younger students displayed to be more active in the usage of such Techno-Pedagogical Tool. It is also observed that more than 75% of the students have a positive attitude towards the usefulness of Techno-Pedagogical Competence tools in their general learning process.

RATIONALE OF THE STUDY

Techno-Pedagogical Competence is a major factor in shaping the new global economy and producing rapid changes in society. Teachers have always played a vital role in preparing communities and societies towards exploring new horizons and achieving higher levels of progress and development. The role of teachers is difficult to meet the individual requirements of the learners. Bhattacharjee and Deb (2016). Now, the education is a student centric approach. So the teacher must prepare to cope up with various technologies for using them in the classroom for making teaching-learning more effective. To face and meet the challenges, every education institutions should embrace the newer technologies and adopt the innovative Techno-Pedagogical Competence tools for optimizing learning. They must also transfer to the goal of transforming the

technological paradigm of learning. As well as, Techno-Pedagogical Competence provides a collection of information which may help in transforming the contemporary, isolated, teacher-centered, text-bound classrooms into rich, student-focused and interactive learning environments. Therefore, effective combination of techno-pedagogical competence and teaching skills contribute certain solutions to the problems of education by developing desirable knowledge, development of attitudes, skills and capabilities of the learners. Hence, it is an urgent need to study the Techno-Pedagogical Competence among the B.Ed. trainees.

OBJECTIVES OF THE STUDY

The objectives of the study are stated as follows,

1. To study the level of Techno-Pedagogical Competence of B.Ed. Trainees.
2. To find out the significance of difference if any, in the Techno-Pedagogical Competence mean score of B.Ed. Trainees with respect to Gender, Educational Qualification, Locality and Optional Subjects.

HYPOTHESES OF THE STUDY

Based on the above objectives, the following Hypotheses are formulated for testing,

1. The level of Techno-Pedagogical Competence Among B.Ed. Trainees is not high.
2. There is no significant difference in the Techno-Pedagogical Competence mean scores of B.Ed. Trainees with respect to Gender, Educational Qualification, Locality and Optional Subjects.

METHODOLOGY IN BRIEF

The investigator adopted descriptive method with a survey technique. A simple random sampling technique was used to collect the data from the respondents. Data was collected from 275B.Ed. Trainees from the select colleges of education in Pudukkottai district. The collected data were analyzed by using percentage analysis and t-test.

TOOL USED

A scale on 'Techno-Pedagogical Competence' was developed by the investigators. The questionnaire consists of 45 items representing all the four dimensions such as Knowledge about Techno-Pedagogical Competence, Interest in Learning Techno-Pedagogical Competence, Usage ofTechno-Pedagogical competence and Entertainment related to Techno-Pedagogical Competence. The responses received from B.Ed. Trainees consisted of five-point Likert Scale type with five options such as Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree. For establishing face validity and content validity, the tool was subjected to the advice of a panel of experts. Based on their expertise, the tool was fine-tuned with necessary modifications; test-retest method was adopted to measure the reliability of the tool. The reliability coefficient for the tool is 0.949.

SCORING PROCEDURE

A score of 5 was given for strongly agree, 4 for Agree, 3 for Neutral, 2 Disagree, and 1 for strongly disagree. Since there were no negative items, all the items were scored in the same manner as stated above.

Data Analysis

Hypothesis-1

The level of Techno-Pedagogical Competence among B.Ed. Trainees is not high

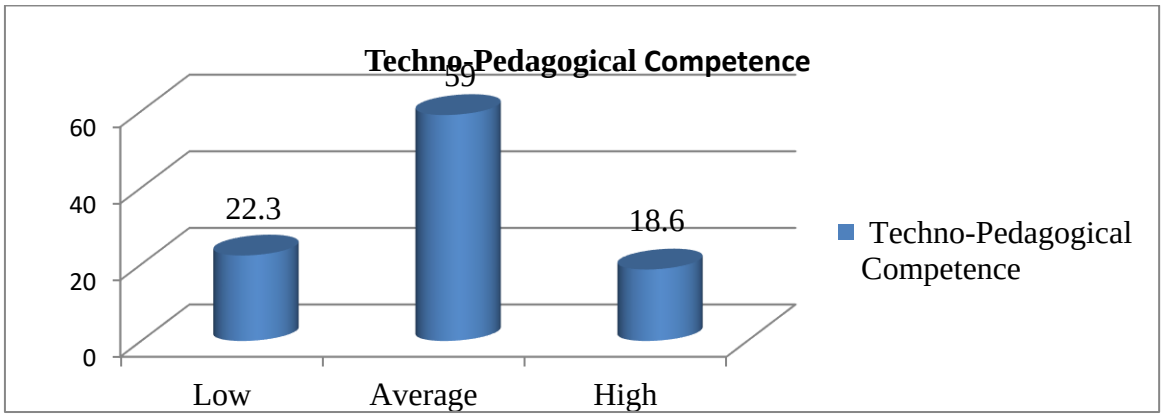
Table-1

Techno-Pedagogical Competence among B.Ed. Trainees in terms of percentages

Variable	N	Low		Average		High	
		N	%	N	%	N	%

Techno-Pedagogical Competence	275	61	22.3	158	59	56	18.6

From the above table, 59% have an average level of Techno-Pedagogical Competence, 18.6% of B.Ed. Trainees have a high level of Techno-Pedagogical competence and 22.3% of B.Ed. Trainees have a low level of Techno-Pedagogical Competence among B.Ed. Trainees.



Graph shows the level of Techno-Pedagogical Competence among the B.Ed. Trainees

Fig.1

From the above Figure -1 inferred that 22.3% of the B.Ed. Trainees have a level of Techno-Pedagogical competence low, 59% average and 18.6% for high. This finding is supported by the previous research conducted by Thakur(2014). The result revealed that the overall Techno-Pedagogical Competence among B.Ed. Trainees was found to be at average level.

Hypothesis – 2

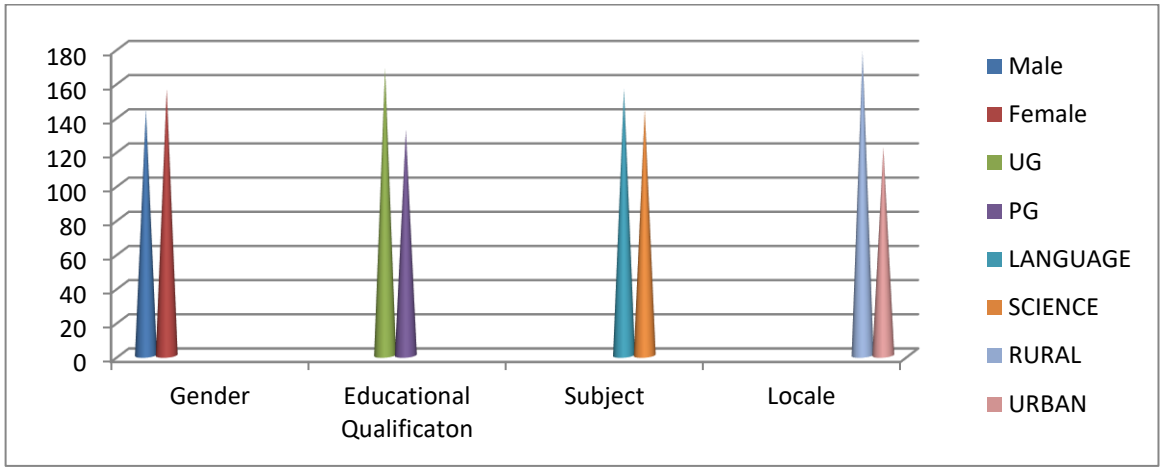
There is no significant difference in the Techno-Pedagogical Competence mean scores of B.Ed. Trainees with respect to Gender, Educational Qualification, Locality and Optional Subjects. This hypothesis was tested by using t-test. The't' value was computed to find out the significance of difference in the Techno-Pedagogical Competence mean score with respect to demographic variables. The results are given in the following table.

Table-2

Significance of difference in the Techno-Pedagogical Competence of B.Ed. Trainees with respect to the Demographic variables.

Demographic Variables	Sub-Variable	N	Mean	S.D	Calculated 't' value	P-value	Result
Gender	Male Female	128 147	122.32 122.05	16.73 19.12	0.12	.038	Not significant
Educational Qualification	UG PG	148 127	122.95 121.20	17.55 18.53	0.83	.403	Not significant
Optional Subject	Language Science	146 129	120.08 124.45	16.871 18.915	2.11	.027	Significant

Locale	Rural Urban	159 116	121.52 123.14	17.025 19.331	2.76	.039	significant



Graph shows the Significance of difference in the Techno-Pedagogical Competence of B.Ed. Trainees with respect to the Demographic variables.

Fig-2

It can be seen from the table-2 that there is no significant gender difference in Techno-Pedagogical Competence. As the calculated‘t’ value (0.12) is less than the table value (1.97) at 0.05 level of significance for degrees of freedom at (2, 29) then the stated null hypothesis is accepted. The above obtained result contradict the previous findings of study conducted by Beenaet al (2012); Angadi(2014).

From the above table-2 indicates that there is no significant difference in Techno-Pedagogical Competence between the UG and PG B.Ed. Trainees. As the calculated‘t’ value (0.83) is less than the table value (1.97) at 0.05 level of significance for degrees of freedom at (2, 29) then the stated null hypothesis is accepted. The above obtained result supports the previous findings of study conducted by Gulhanne(2016).

Also, the above table-2 indicates that there is significant difference in Techno-Pedagogical Competence between the B.Ed. Trainees of Science and Language optional B.Ed. Trainees. As the calculated ‘t’ value (2, 11) is greater than the table value (1.97) at 0.05 level of significance for degree of freedom at (2, 29) then the stated null hypothesis is rejected. It means that as compared to Language optional B.Ed. Trainees. The science optional B.Ed. Trainees have more awareness towards Techno-Pedagogical Competence. The B.Ed. Trainees with Science optional subjects are gaining more knowledge and experience rather than the Language optional B.Ed. Trainees. This finding is supported by the previous research conducted by Philominaet al. (2016).

It can be seen from the table-2 that there is significant difference in the Techno-Pedagogical Competence between the rural and urban B.Ed. Trainees. As the calculated ‘t’value (.764) is less than the table value (1.97) at 0.05 level of significance for degree of freedom at (2,29) than the stated null hypothesis is rejected. The above obtained result support the previous findings of study conducted by Muthuchamy (2010).

RECOMMENDATIONS

- The B.Ed. Trainees are to be oriented at their institution level to improve Techno-Pedagogical Competence with right perspectives.
- The practicum on Techno-Pedagogical integration in teaching and learning may be included in the teacher education curriculum at all levels.
- By providing sufficient financial resources for upgrading infrastructural facilities for integration of Techno-Pedagogical Competence.
- The B.Ed. Trainees are to be most frequently expectation and concern of B.Ed. Trainees is to be competent in the profession through Techno Pedagogical Competence.

- The B.Ed. Trainees are to be able to develop positive attitude in their teaching-learning process by Techno Pedagogical Competence.

CONCLUSION

Techno-Pedagogical Competence is one of the major factors for constructing the rapid changes in our society. It can change the nature of education and effect students and teacher in teaching learning practice. Teaching occupies an honorable position in the society. Also, Techno-Pedagogical Competence aids the teacher to update the innovative knowledge, skills to practice the new digital tools and resources effective and efficient integration of Techno-Pedagogical Competence into the system of teacher education is a highly complex process and its success demands team work to fulfill its mission and vision. This study has identified 59% of B.Ed. Trainees falls under the average level of Techno-Pedagogical Competence. Also, the Techno-Pedagogical Competence among language optional B.Ed. Trainees and rural B.Ed. Trainees were at low comparing with Science optional and urban B.Ed. Trainees. The demographic variables Gender and Educational Qualification did not have a major impact on the Techno-Pedagogical Competence among B.Ed. Trainees. There is no doubt that allocation of adequate financial resources, qualified and trained human resources and supporting educational policies are some of the important prerequisites to have an outcome and quality oriented teachers in future.

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