Problems in Teaching Educational Technology to UG Teacher Educators in AP: A Study on the Effect of Demographic Factors

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Abstract: *Educational Technology (ET) is the application of scientific knowledge about learning to improve the effectiveness and efficiency of teaching and learning. The objective of the study is to find out the difficulty and intensity level of problems faced by the teacher educators in teaching Educational Technology. It is to know the influence of the demographic variables namely sex, age, area, socio-economic status, methodology and teaching experience of the teacher educators and their problems in teaching Educational Technology who working at different colleges located in regions of Andhra, Rayalaseema and Telangana. There would be no significant influence of some of the demographic variable, methodology, teacher experience and college of the teacher educator on the problems in teaching Educational Technology. The Check list cum rating questionnaire is the tool, developed by the investigators, used for Teacher Educators with 50 statements. The Survey Method was chosen for collecting the data from 200 Teacher Educators. The stratified random sampling technique was employed for selecting the samples in the present study. Statistical tools like Mean, S.D., Chi- Square, t-Test and F- test (**significant at 0.01 level,* 0.05 level & @not significant at 0.05 level.) were used in the analysis of the data. Finally, there was no significant difference between the observed values and expected values in each problem faced by teacher educator in teaching ET.*

Index Terms: *Educational Technology, Teacher Educators, Mean, Standard Deviation, Chi-Square test, T-Test*

I. INTRODUCTION

Man is always desired for excellence. This desire has given birth to new inventions and innovations in all walks of life. Science and Technology has always been instrumental in bringing efficiency and improvement in the processes and products of the human work. The world of education is also been influenced by the increased use of technology. It has provided valuable help in improving the task of the teacher, smoothening the process of teaching-learning and enriching the goals of education. Education is a three-fold process-imparting knowledge, developing skills and inculcating proper interests, attitudes and life values. But even today, our schools are often mostly concerned with the imparting of knowledge. Today's curriculum is found to be need based. As a result of new educational aims, newer methods were designed to foster learning; and educational technology has stimulated teachers to innovate in the areas of school organization, curriculum construction and teaching

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methods resulting in newer concepts like "modular scheduling", "team teaching", "self-study project" etc. Educational Technology is concerned to provide appropriately designed learning situations which holding in view the objectives of the teaching or training, bring to bear the best means of instructions.

➢ Educational Technology is an applied or application body of knowledge.
➢ It seeks to take help of the laws and findings of psychology, sociology, engineering and some other basic social and physical sciences.

II. STATEMENT OF THE PROBLEM

The present investigation is concerned with the various problems that teachers generally come across in teaching the educational technology in B.Ed class rooms as well as the student of B.Ed programme also having the problem in learning the Educational Technology. Some personal and demographic variables are differing in individuals in case of the teaching Educational Technology. This study also deals with the various problems in teaching-learning the Educational Technology by the teacher educators and student teachers.

III. OBJECTIVES & HYPOTHESIS OF STUDY

To find out the difficulty and intensity level of Problems faced by the Teacher Educators in teaching Educational Technology. There would be no significant influence of some of the demographic variable namely sex, age, area, socio economic status, Methodology, Experience and College of the teacher educator on the problems in teaching Educational Technology. There would be no significant difference between the teacher educators in expressing each problem as difficulty in Teaching Educational Technology. There would be no significant influence of some of the demographic variable namely sex, age, area, socio economic status, Methodology, Experience and College of the teacher educator on the problems in teaching Educational Technology.

IV. LITERATURE REVIEW

Brophy, (1985) Conducted a research and interaction of male and female teachers. He reported on teachers interactions with students males were found to get more attention than females. An important factor influencing classroom interaction, in addition to student gender and academic standing, is the style of communication of the teacher.

Cradler, J. and Bridgforth, E. (1996), did a study on recent research pertaining to the effects of technology on teaching and learning. Explains with the results the benefits, the most appropriate uses of technology and telecommunications to support and expand teaching and learning. Baylor. A and Ritchie. D (2002), Reported that regardless of the amount of technology and its sophistication, technology would not be used unless teachers have the skills, knowledge and attitude necessary to infuse it into the curriculum.

V. METHODOLOGY

The present study has adopted the Survey Method since the selected area is to test and understand the causal process. A sample of 200 Teacher Educators was selected. The sampling technique employed in the present study in selecting the samples was stratified random sampling. The study was conducted in two Telugu states i.e., Andhra Pradesh & Telangana state. The state is geographically divided into 3 regions. They are Rayalaseema, Coastal and Telangana regions. There are 4 districts in Rayalaseema, 9 districts in Coastal and 10 districts in Telangana region. As for education and economy is concerned Andhra and Telangana region stands in first with an average level of education and economy. All the teaching educators teaching in A.P and Telangana were the universe sample of the present study. The total samples selected under Teacher-Education are 200: 100 from Coastal Andhra, 50 Rayalaseema and Telangana 50. The teacher educators sampling is shown in table

A. Tools

The tools used in the study are check list cum rating questionnaire tool used for Teacher Educators with 50 statements and Personal Data Sheet. The investigator developed the tool.

B. Scoring

Check List: YES = 1 and NO = 0
Intensity of the problem: 3 point scale i,e., High=3, Moderate=2 Amd Low=1.

C. Item Analysis

The pilot study was planned and carried out with a sample of 20 randomly selected teacher educators at UG level. The data collected through pilot study was subjected for item analysis for finding out the discriminative power of each item, which is used for the 'Item reliability' and 'Item validity' and for selection or rejection of the item into the final form of the tool.

D. Reliability

The reliability estimated by test- retest method. There are items after item analysis.

Thus the reliability of the questionnaire was 0.78.

E. Validity

The questionnaire was administered on a sample of 20 teaching educators teaching at B.Ed level
The intrinsic validity of the present checklist cum rating scale was √0.78= 0.88

F. Statistical Techniques Used

The data thus collected and scored was analyzed by using relevant statistical techniques like Mean, Standard Deviation, Chi-Square test, t – tests and F- tests.

The usual levels of significance, viz., 0.05, and 0.01 were used to test the significance of the obtained statistics.
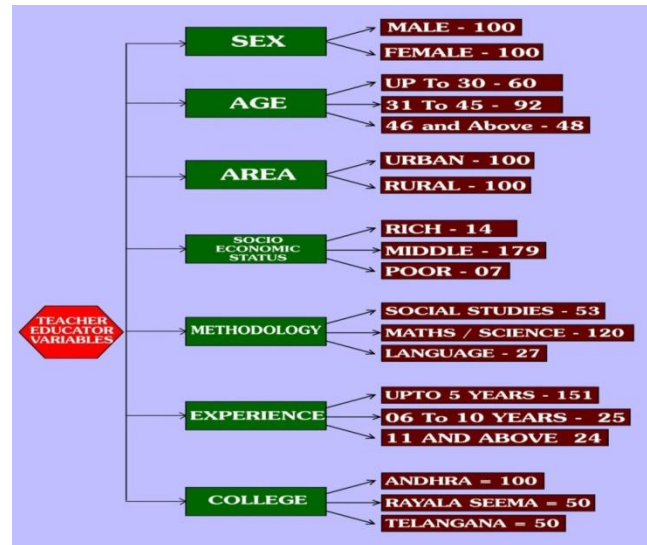

Fig. 1: Sample Design of Teacher Educators.

In the present investigation the highest scoring 27 percent and the lowest scoring 27 percent were taken to represent the high and low groups, because with this tail proportions, the co-efficient of discrimination is most sensitive (Kelly, 1939).

- Internal consistency of any question = mean score of the high group-mean score of the low group on the question.
- The items have an internal consistency of 0.35 or more were selected.
- From the tool of Teacher Educators 10 items eliminated and the remaining 40 items consisted for the final form out of 50.
- Therefore the final form of the checklist cum rating questionnaire problems relate teacher Educators in Teaching Educational Technology contains 40 items

Table 1: Frequencies under different categories of difficulty and intensity level of each of the statement and the value of chi-square (Teacher - Educators) as shown below.

VI. RESULTS & DISCUSSION

Hypothesis 1: There would be no significant differences between the observed intensity level and the expected intensity level of each statement included in the problem of Teaching Educational Technology.

Note: 1. Numbers outside the brackets are obtained frequencies & inside the brackets are percentages (%). 2. Numbers inside the brackets are expected frequencies (f_e)

** indicates significant at 0.01 level
* indicates significant at 0.05 level
@ indicates not significant at 0.05 level.
The chi-square value for statement no.s 1,5,19,23 and 40 are not significant at 0.05 level.
- Out of 40 statements, 5 statements are not significant at 0.05 level.

Table.1

Sl. No	Statement	Yes	No	Intensity Level			
				High	Medium	Low	χ^2
1.	Are you facing problem to teach the subject in regional language.	36 (18)	164 (82)	12 (12)	16 (12)	8 (12)	2.66@
2.	While preparation for the class, contents cannot digest at once.	100 (50)	100 (50)	6 (33.3)	75 (33.3)	19 (33.3)	80.73**
3.	Cannot use the technology apparatus appropriately while teaching the points	129 (64.5)	71 (35.5)	21 (43)	71 (43)	37 (43)	30.3**
4.	Problem in using right terminology and also in explanation	95 (47.5)	105 (52.5)	30 (31.6)	46 (31.6)	19 (31.6)	11.64**
5	Problem in clarifying the doubts relating to the subject for some students.	114 (57)	86 (43)	29 (38)	46 (38)	39 (38)	3.84@
6	Facing difficulty in teaching computers due to lack of computer knowledge.	81 (40.5)	119 (59.5)	28 (27)	45 (27)	8 (27)	25.41**
7	Lack of teaching the subject to the student level.	120 (60)	80 (40)	41 (40)	64 (40)	15 (40)	30.03**
8	Facing difficulty in teaching Action Research topic in Educational Technology.	51 (25.5)	149 (74.5)	3 (17)	32 (17)	16 (17)	25.29**
9	Problem in using A.V. aids	68 (34)	132 (66)	5 (22.6)	54 (22.6)	9 (22.6)	65.49**
10	No refreshing courses for the subject lecturers regarding A.V aids.	155 (77.5)	45 (22.5)	70 (51.6)	54 (51.6)	31 (51.6)	14.91**
11	Problem in teaching of some topics in curriculum regarding latest technology.	146 (73)	54 (27)	43 (48.6)	82 (48.6)	21 (48.6)	39.27**
12	Effectiveness of teaching in theory and practical.	112 (56)	88 (44)	17 (37.3)	63 (37.3)	32 (37.3)	29.49**
13	Problem with lack of equipment in colleges (or) lack of technology resources.	138 (69)	62 (31)	58 (46)	50 (46)	30 (46)	9.03**
14	Proportionate teaching aids are not used with respect to theory.	128 (64)	72 (36)	34 (42.6)	74 (42.6)	20 (42.6)	36.84**
15	Non-availability of adequate equipment in lab.	133 (66.5)	67 (33.5)	29 (44.3)	92 (44.3)	12 (44.3)	80.19**
16	Lack of equipment related to the ratio of students	147 (73.5)	53 (26.5)	38 (49)	73 (49)	36 (49)	7.65*
17	Lack of idea in teaching micro teaching skills.	101 (50.5)	99 (49.5)	26 (33.6)	55 (33.6)	20 (33.6)	20.82**
18	In most of the cases microteaching cycle process is not followed.	112 (56)	88 (44)	46 (37.3)	52 (37.3)	14 (37.3)	22.35**
19	If we use the microteaching cycle, time is not sufficient for one year course.	133 (66.5)	67 (33.5)	40 (44.3)	50 (44.3)	43 (44.3)	1.17@
20	During the observation of microteaching, teacher educator lacks an idea on classroom interaction.	81 (40.5)	119 (59.5)	20 (27)	38 (27)	23 (27)	6.87*
21	If we have an idea on classroom interaction, time is not sufficient to teach all skills.	155 (77.5)	45 (22.5)	49 (51.6)	91 (51.6)	15 (51.6)	56.16**
22	Skilled teachers are not available for teaching the microteaching.	104 (52)	96 (48)	33 (34.6)	63 (34.6)	8 (34.6)	43.75**
23	Audio-visual equipments are not available for the feedback process in microteaching.	143 (71.5)	57 (28.5)	56 (47.6)	57 (47.6)	30 (47.6)	1.29@0
24	Are you having right experience to rate the scale of microteaching components	139 (69.5)	61 (30.5)	35 (46.3)	78 (46.3)	26 (46.3)	33.33**
25	Very few microteaching skills are taught in the class, one to not knowing them properly.	117 (58.5)	83 (41.5)	37 (39)	64 (39)	16 (39)	29.67**
26	Most of the teachers do not demonstrate physically the movements required	122 (61)	78 (39)	56 (40.6)	50 (40.6)	16 (40.6)	22.89**
27	If the teacher performs right skill movements, the student teacher feels it entertaining.	103 (51.5)	97 (49.5)	47 (34.3)	44 (34.3)	12 (34.3)	21.9**
28	The allotted time is not adequate to complete the cycle of a lecture to develop a skill (36 min).	130 (65)	70 (35)	57 (43.3)	65 (43.3)	8 (43.3)	43.95**
29	The teacher is unable to use both projected and non projected aids due to lack of idea on ICT.	93 (46.5)	107 (53.5)	40 (31)	34 (31)	19 (31)	7.53*
30	Most of the lecturers will not have command on transfer of ET in methodology content.	87 (43.5)	113 (56.5)	31 (29)	44 (29)	12 (29)	17.82**
31	The ET lecturer cannot satisfy the social science students regarding some scientific related topics.	129 (64.5)	71 (35.5)	42 (43)	63 (43)	24 (43)	17.7**
32	There is no proportionate response from the student teacher.	78 (39)	122 (61)	42 (26)	32 (26)	4 (26)	29.82**
33	The teacher educators have problem in teaching, if they do not have basic knowledge of A.V aids.	139 (69.5)	61 (30.5)	33 (46.3)	66 (46.3)	40 (46.3)	13.05**
34	Most of the teacher educators are confused between hardware and software.	101 (50.5)	99 (49.5)	27 (33.6)	28 (33.6)	46 (33.6)	17.13**
35	Facing difficulty in teaching class room interaction like FAICS, VICS etc.	96 (48)	104 (52)	31 (32)	48 (32)	17 (32)	15.06**
36	The teachers have problem of analyzing the student data due to short duration.	153 (76)	48 (241)	38 (50.6)	75 (50.6)	(50.6)	17.52**
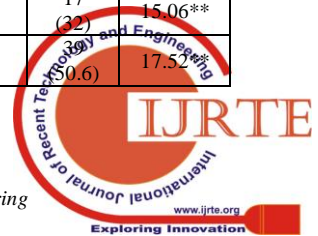
37	If the micro skills are not taught properly it may affect the macro teaching in methodologies.	141 (70.5)	59 (29.5)	83 (47)	35 (47)	23 (47)	42.87**
38	Facing difficulty in teaching the concept of programming learning.	64 (32)	136 (68)	14 (21.3)	34 (21.3)	16 (21.3)	11.37**
39	Have you taught the computer based instruction without any problem?	119 (59.5)	81 (40.5)	25 (39.6)	65 (39.6)	29 (39.6)	24.48**
40	No teacher is following the principles of demonstration.	145 (72.5)	55 (27.5)	38 (48.3)	56 (48.3)	51 (48.3)	3.54@

- This reveals that there was no significant difference between the observed and expected difficulty level for the statements
- 35 statements are significant at 0.01 level. This reveals that there is significant difference between the observed and expected difficulty level for the statements.

Hypothesis 2: There would be no significant difference between the male and female Teacher Educators on problem relating to teaching Educational Technology to the B.Ed Students.

Table 2: Means, SD's and t- values of problems related to the teacher educators (N-200) according to their Sex.

S. No	Sex	N	Intensity scores		t-value
			Mean	SD	
1	M	100	48.07	12.02	00.129@
2	F	100	47.84	20.26	

@ not significant at the rate of 0.05

The means scores of the problems faced by the two groups were found to be male (48.07) and female (47.84) respectively. To find out the difference between the mean scores of the two groups, t value (0.129) was found. It is less than the table value at 0.05 level. Hence the difference between the two means was considered to be not significant thus the hypothesis was accepted. It was concluded that the mean scores of the groups were not significantly different. Therefore, there is no sex difference among the teacher educators on problem relating to teaching educational technology for B.Ed., students.

Hypothesis 3: There would be no significant difference between the Urban and Rural areas on problem relating to teaching Educational Technology to the B.Ed Students.

Table 3: Means, SD's and t- values of problems related to the teacher educators (N-200) according to their area.

S. No	Area	N	Intensity scores		t-value
			Mean	SD	
1	Urban	100	46.6	16.355	10.158 @
2	Rural	100	49.31	16.856	

@ not significant at the rate of 0.05

The mean scores of the problems faced by the two areas were found as Urban 46.6 and Rural 49.31 respectively. To find out the difference between the mean scores of the two areas, t value 1.158 was found. It is less than the table value at 0.05 level. Hence the difference between the two means was considered to be not significant thus the hypothesis was accepted. Therefore there is no area difference among the teacher educators on problem relating to teaching educational technology for B.Ed., students.

Hypothesis 4: There would be no significant difference between the different age groups of the subjects on problem relating to teaching educational technology for B.Ed students.

Table 4: ANOVA for the Teacher Educators in teaching ET (N=200) according to their ages.

S. No	Source of variation	Sum of squares	df	Mean sum of square	F -ratio
1. 2. 3.	Between the groups Within the groups Total	2321. 52657.57254 978.595	2 197 199	1160.511 267.297	4.342*

*Significant at the rate of 0.05

From the table 4, it could be seen that the problem related to the teacher educators in teaching educational technology scores of mean difference between the age 31 to 45 years (44.49) and 46 years and above (49.13) was not significant at 0.05 level. The calculate t_{23} value was 1.56 this scores of that the age between 31 to 45 was lower than the age above 46 years .Hence the hypothesis that subject of different ages there was no significant relationship between these two ages with regard to the problem in teaching educational technology did not differ significantly among themselves was accepted. it was concluded that there was no significant relationship between these two ages with regard to the problem in teaching educational technology.
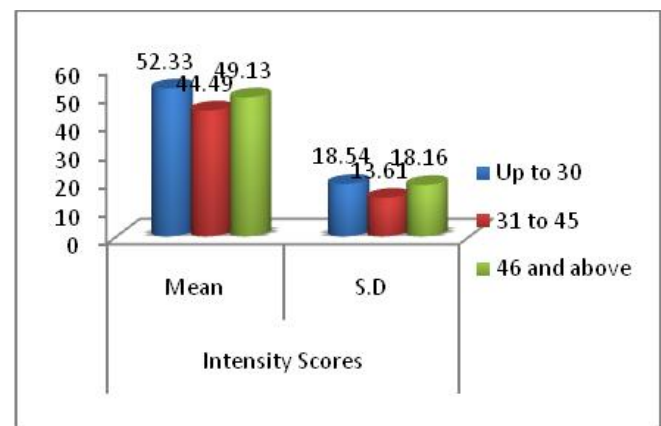

Fig. 2: Means, SD's and t- values of problems related to the teacher educators (N-200) according to their Age.

Hypothesis 5: There would be no significant difference between the Rich, Middle and Poor i.e., Socio Economic status on problem relating to teaching educational technology for B.Ed students.

Table 5: ANOVA for the teacher educators in teaching ET (N=200) according to their Socio economic status.

S.No	Source of variation	Sum of squares	df	Mean sum of square	F -ratio
1.	Between the	4441.51	2	2220.755	8.657**
2.	groups	50537.085	197	256.533	
3.	Within the groups Total	54978.595	199		

** Significant at the rate of 0.01

From the table 5, it could be seen that the problem related to the teacher educators in teaching educational technology scores of mean difference between the age up to 30 years (52.33) and 46 years and above (49.13) was not significant at 0.05 level. The calculate t_{13} value was 0.94 this scores of that the age above 46 and above was lower than the age up to 30 years .Hence the hypothesis that subject of different ages up to 30 years and above 46 years did not differ significantly among themselves was accepted. it was concluded that there was no significant relationship between these two ages with regard to the problem in teaching educational technology.

Table 6: ANOVA for the teacher educators in teaching ET (N=200) according to their Socio economic status.

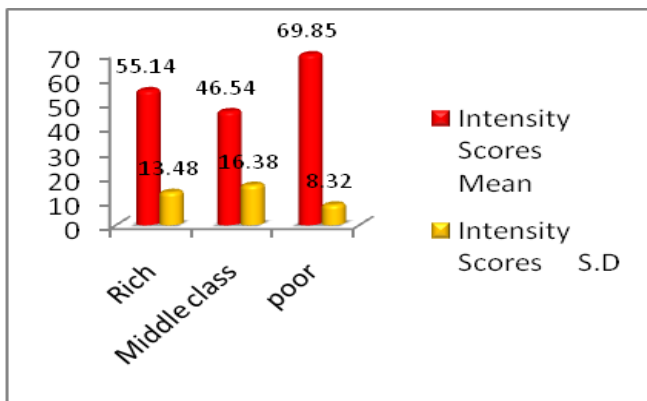| S.No	Socio Economic Status	N	Intensity scores		t-value
			Mean	SD	
1	Rich	14	55.14	13.48	12=2.263*
2	Middle class	179	46.54	16.38	13=3.07**
3	Poor	7	69.85	18.32	23=6.916 **

Fig. 3: Means, SD's of problems related to the teacher educators (N-200) according to their Socio Economic Status

From table 6, the F ratio for problems related to the teacher educators in teaching educational technology at different socio economic status for 2 and 197df was found to be significant at 0.01 levels. The F ratio was found to be 8.657. The significant F ratio indicates that the mean score of different group of socio economic status in different levels are significant. Hence, the hypothesis that the mean value of the different groups of subject belonging to different socio economic status in teaching educational technology differ significantly was not accepted (i.e., rejected). It was inferred that there was significant difference between different socio economic status and problem related to the teacher educators in teaching educational technology.

To find out which of the socio economic status differ significantly from one another the t test was employed

Hypothesis 6: There will be no significant difference between the different subjects taught by teacher educators relating to teaching ET for B.Ed students.

Table 7: ANOVA for the Teacher Educators in teaching ET (N=200) according to their subjects taught.

S.No	Source of variation	Sum of squares	df	Mean sum of square	F -ratio
1.	Between the	329.33	2	1164.66	
2.	groups	54649.25	197	277.40	0.59
3.	Within the groups Total	54976.59	199		*

* Significant at 0.05 level
** Significant at 0.01 level

From Table 7, it could be seen that the problem related to the student teacher in teaching educational technology scores of mean difference between the socio economic status in Rich (55.14) and middle class (46.54) levels are significant at 0.05 level. The calculated t12 value was 2.263. This scores that the socio economic status level middle class was lower than the Rich. Hence the hypothesis that the teachers of different levels of socio economic status (rich and middle class) differ significantly among themselves was rejected. It was concluded that there was significant relationship between these two socio economic status levels with regard to the problem in teaching educational technology.

The student teacher in teaching educational technology scores of mean difference between the socio economic status in middle class (46.54) and poor (69.85) levels are significant at 0.01 level. The calculated t_{23} value was 6.916. This scores that the socio economic status level of middle class was lower than the poor. Hence the hypothesis that the teachers of different levels of socio economic status (middle class and poor) differ significantly among themselves was rejected. it was concluded that there was significant relationship between these two socio economic status levels with regard to the problem in teaching educational technology.

Hypothesis 7: There will be no significant difference between the different experiences of the subjects on problem relating to teaching ET for B.Ed students.

Table 8: ANOVA for the Teacher Educators in teaching ET (N=200) according to their subjects taught.

S.No	Source of Variation	Sum of squares	df	Mean sum of square	F -ratio
1.	Between the groups	553.92	2		40.59
2.	Within the groups	54424.67	197	1276.96	*
3.	Total	54978.59	199	276.26	

@ not significant at the rate of 0.05

From table 8, the F ratio for problems related by the teaching Educators in teaching educational technology who taught by different subjects for 2 and 197df was not significant at 0.05 level. The F ratio was found to be 0.59. The non- significant F ratio indicates that the mean score of different subject taught did not differ significantly.

Hence, the hypothesis that the mean value of the different group subjects belonging to different subjects taught by the teacher educators in teaching educational technology did not differ significantly was accepted. It was inferred that there was no significant difference between different subjects taught by Teacher Educators and problem relating to teaching educational technology at B.Ed level.

Hypothesis 8: There will be no significant difference between the different experiences of the subjects on problem relating to teaching ET for B.Ed students,

Table 9: ANOVA for problem faced by the Teacher Educators in teaching educational technology (N=200) according to their experience.

S.No	Source of variation	Sum of squares	df	Mean sum of square	F -ratio
1. 2. 3.	Between the groups Within the groups Total	895.85 54082.74 54978.59	2 197 199	1447.93 274.53	1.632@

@ not significant at the rate of 0.05

From table 9, the F ratio for problems related to teaching ET related to different experiences for 2 and 197 df was not significant at 0.05 level. The F ratio was found to be 1.002. The non- significant F ratio indicates that the mean score of different groups of experience did not differ significantly. Hence, the hypothesis that the mean value of the different group of subjects related to different experiences on problem faced by the teacher educators in teaching educational technology did not differ significantly was accepted. It was inferred that there was no significant difference between different experiences of teacher educators related to teaching educational technology at B.Ed level.

V. CONCLUSION

The teacher acts as a pivot for the transmission of intellectual and technical skills and cultural traditions from one generation to another. Hence, effective training has to be provided to the student-teachers at B.Ed level. On the basis of the results of this investigation, the following are the salient findings are presented below. Out of 40 statements, 5 statements are not significant at 0.05 level. This reveals that there was no significant difference between the observed and expected difficulty level for the statements. 35 statements are significant at 0.01 level. This reveals that there is significant difference between the observed and expected difficulty level for the statements Sex, area, methodology, experience and college of the teacher educator on the problems in teaching Educational Technology are not significant at 0.005 level. Hence the hypothesis is accepted. Age, socio economic status of the teacher educator on the problems in teaching ET is significant at 0.005 and 0.01 level. Hence the hypothesis is rejected. Finally, there was no significant difference between the observed values and expected values in each problem faced by teacher educator in teaching Educational Technology.

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