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"Scientific Temper And Professional Developmentamong Teacher Educators"

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ABSTRACT:

This study attempted to find out the relationship of Scientific Temper and Professional development among Teacher Educators. The sample consisted of equal number of (80 each) male and femaleteacher educators were chosen from 21 different colleges of teacher Education in and around from Yadgir District, Kalaburagi District and Raichur District. The teacher educators' Scientific Temper measured by the Scientific Temper Scale (STC) developed by Dr. Smt. Leela Pradhan (2012) and Professional Developmentmeasured by the Professional Development Scale (Yodida Bhutia, 2014).Results revealed that: There is significant difference among the means of scientific temper and professional development of different demographic variables of teacher educator. Teacher Educators are considered as the main pillar in the educational system. They are the moderators through which the knowledge can be transferred to the students who represent the foundation of the society. Teacher Educators cannot be the effective source of knowledge unless they are possessed with the good professional development.

Key Words: Scientific Temper, Professional development, Teacher Educator.

INTRODUCTION:

Scientific Temper, therefore, emphasizes science, finds facts without discrimination or bias. It is part of an affective disposition, an attitude and mental and cultural tradition that matters with regard to the material world, which relies on analysis, questioning and reasoning to arrive at a judgment or conclusion, or consideration with regard to matters of material everyday life (Malcom, 1984).Scientific Temper implies loyalty to the method of research as means of acquiring knowledge, fostering a spirit of rigorous enquiry and reverence for scientific evidence. Scientific Tempering education would require training and understanding in all these different aspects of science practice. It comes across well with the approach to teaching science with the ' nature of science. ' (Viswanathan, 2011).

Eminent Scientist and beneficiary of the Bharat Ratna, Rao says: “there is a need to give fillip to science and said that Scientific Temper is something, we don't have in this country”. He stressed on the need for providing more resources for scientific research”. (Rao, 2014).

The professional development of teacher educators is crucial, because it affects the entire educational system. It is said in Srinivasacharlu, A. (2019), "Teachers can only produce qualified teachers and do justice to their profession, only if they keep going with their continuing professional development (CPD)".

Teacher educators provide valuable experiences to prospective teachers for achieving the predetermined objectives of specific teacher education course. They are the role models for prospective teachers. They help prospective teachers in acquiring knowledge, skills and values that teachers have to employ in the classroom. In designing lucrative teaching strategies, they potentially perform numerous roles as developers, mediators of knowledge and educational innovators in providing and in reforming the quality of the education system by influencing prospective teachers and in-service teachers. Therefore, if a teacher educator works sincerely, he/she will prove to be asset to the society and mankind at large, but if his/her training has been faulty or ineffective, he/she will come out to be a rotten stuff. (Barman, *et.al.*, 2015).

As it is mentioned earlier that scientific temper has a huge impact on the professional development of an individual, hence, examining the relation between scientific temper and professional developmentof teacher educator’s is worth discussing.

OBJECTIVES:

1) Objective-1: To study the significant difference between the means of scientific temper of different variables of Teacher Educators
2) Objective-2: To study the significant difference between the professional development of different variables of Teacher Educators
3) Objective-3: To study significant relationship between scientific temper and professional development of different variables of Teacher Educators.

HYPOTHESIS:

1) $H_0$1: There is no significant difference between the means of demographic variablesof Teacher Educators on scientific temper
2) $H_0$2: There is no significant difference between the means of demographic variables of Teacher Educators on professional developments
3) $H_0$3:There is no significant relationship between scientific temper and professional development of demographic variables of Teacher Educators.

METHOD:

Sample:

Teacher Educators of Teacher Education Institutions (TEI) or B.Ed. colleges were selected for the purpose of the study. 160 Teacher Educators included in the study, 80 were male and rest were females. They were working in the Teacher Education Institutions (TEI) or B.Ed. colleges situated in the Yadgir District, Kalaburagi District and Raichur District.

TOOLS used:

1) **Demographic Data Sheet:**

The first part designed to collect preliminary information regarding colleges or institutions and teacher educator's name, gender, stream of teaching subject, experience, type of institution, location of the institution etc.

2) **Scientific Temper Scale**

The Scientific Temper scale developed Dr. Leela Pradhan 2012 the final form of scientific temper scale consisted of 30 items, measuring the levels of Scientific temper on four dimensions i.e., 1) Value perspective 2) Aversion to superstitions 3) A set of attitudes 4) A world view perspective.

The reliability coefficient of scientific temper scale found to be 0.838. The reliability coefficient of value perspective dimension is 0.758 and aversion to superstitions dimensions is 0.818. The coefficient is 0.562 and world view perspective dimension is 0.544. Thus, the reliability yielding high reliability of the scale.

This instrument is based on definitions of scientific temper. In addition to this the content validity of each item was also calculated by Lawshe (1975) method and item having CVR below 0.62 were rejected.

3) **The Professional Development scale**

The Professional Development scale developed by Yodida Bhutia2014, has consist both positive and negative statements. There are 43 positive statements and 25 negative statements.

Reliability:

The reliability of the whole Professional Development Scale was worked out using split half method. The reliability coefficient is 0.93 which is fairly high and indicates the test is reliable. (Cronbach alpha provides a measure of the extent to which the items on a test provide consistent information with regard to Teachers' mastery of the domain. In a way, Cronbach's alpha is often considered a measure of item homogeneity).

Item validity: The scale of the final scale was selected taking the `t' value of the items which had a significance of 0.01 level. This indicates high item validity.

Procedure data collection:

The investigator visited personally each college / TEIs, produced the permission letters for the administration of test and took the permission from the respective heads of the institution to administer the tool to 160 teacher educators in Yadgir, Kalaburagi and Raichur Districts and collected data from these samples.

Statistical techniques used:

The data were analyzed with the help of the statistical techniques like descriptive statistics, Standard deviation, t-test and Pearson product moment correlation by using SPSS version.

RESULTS:

1. **Objective-1: To studythe significant difference between the means of scientific temper of different variables of Teacher Educators**

To test this hypothesis, 't' test of significance for difference between male and female Teacher Educators on scientific temper scale was employed and the details are presented in table 1.

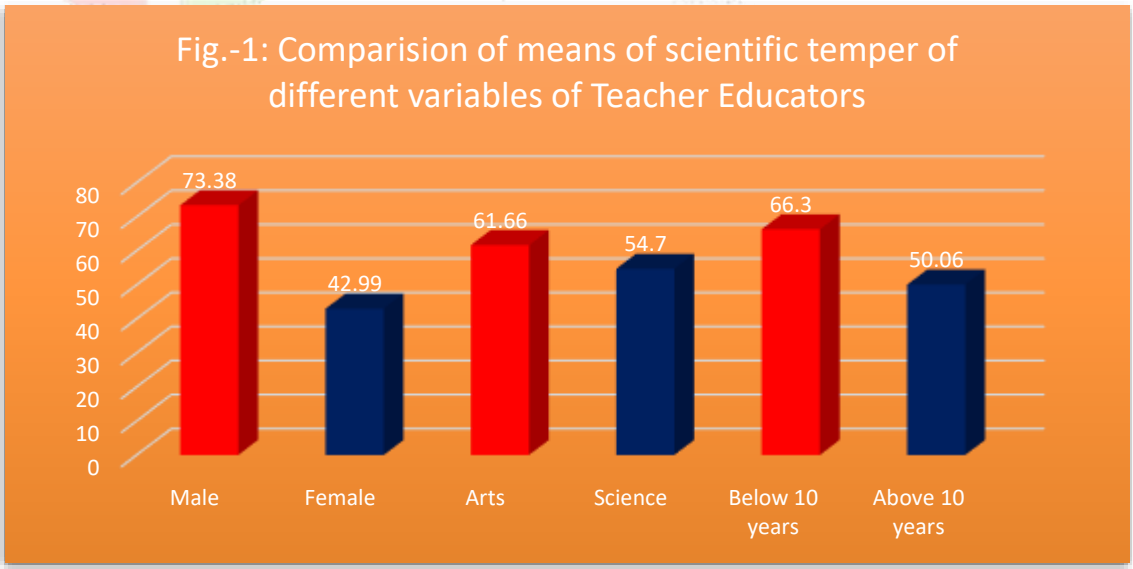
Table-1

Mean, S.D. and t-value of scores of scientific temper of different categories Teacher Educators

Variable	N	Mean	SD	't' value	Significance
Male	80	73.38	9.797	48.209	Significant at 0.05 level
Female	80	42.99	8.467		
Arts	80	61.66	18.330	10.702	Significant at 0.05 level
Science	80	54.70	16.574		
Below 10 years experienced	80	66.30	16.506	4.751	Significant at 0.05 level
Above 10 years experienced	80	50.06	15.233		

(Table value of t = 1.960 is at 0.05 level of significance and degree of 158)

It is evident from table 4.1 that there is significant difference between the means of demographic variables like male and female, Arts and science and below and above10 years experienced Teacher Educators on scientific temper Scale ('t' = 48.209,10.702 and 4.751 is significant). Hence, the null hypothesis-1 is rejected and alternative hypothesis is accepted and concluded that the demographic variables like male and female, Arts and science and Below and above 10 years experienced Teacher Educators differ in their level of scientific temper. It is also observed from the table that, the male teacher educators, Arts subject and below 10 years experienced teachers have higher mean of scientific temper than their counterparts.



Objective-2: To studythe significant difference between the professional development of different categories of Teacher Educators

To test this hypothesis, 't' test of significance for difference between male and female Teacher

Educators on professional development scale was employed and the details are presented in table -2.

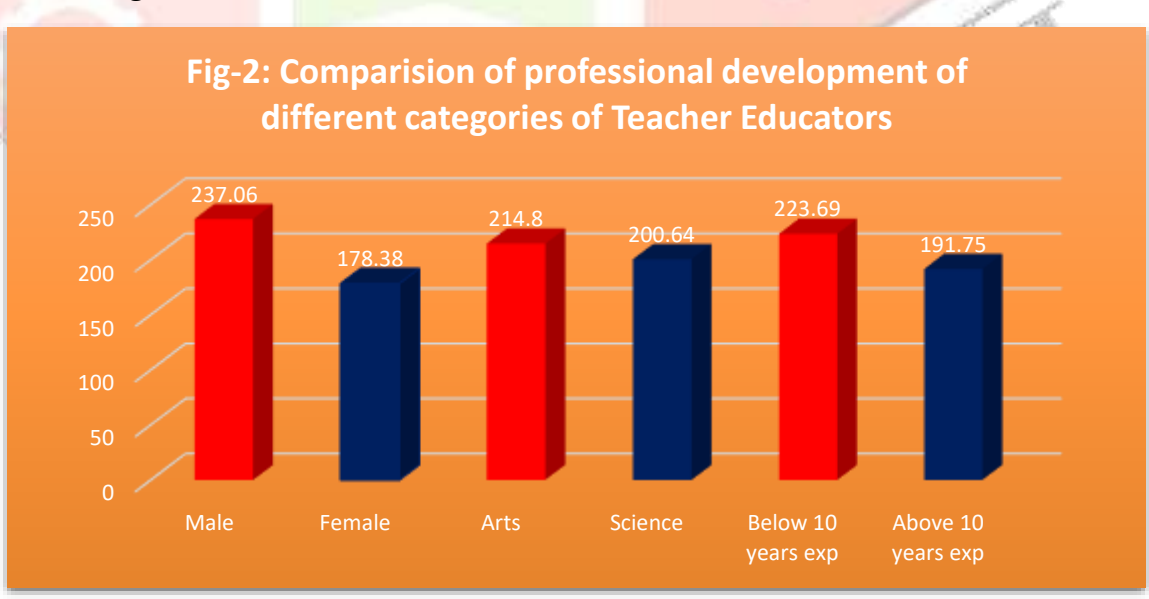
Table-2.

Mean, S.D. and t-value of scores of professional development male and female Teacher Educators

Variable	N	Mean	SD	't' value	Significance
Male	80	237.06	18.866	51.689	Significant at 0.05 level
Female	80	178.38	16.687		
Arts	80	214.80	35.442	10.749	Significant at 0.05 level
Science	80	200.64	31.947		
Below 10 years experienced	80	223.69	31.867	5.440	Significant at 0.05 level
Above 10 years experienced	80	191.75	29.092		

(Table value of t = 1.960 is at 0.05 level of significance and degree of 158)

It is evident from table 4.1 that there is significant difference between the means of demographic variables like male and female, Arts and science and Below and above 10 years experienced Teacher Educators on professional development Scale ('t' = 48.209, 10.749, and 5.440is significant). Hence, the null hypothesis-2 is rejected and alternative hypothesis is accepted and concluded that the demographic variables like male and female, Arts and science and Below and above 10 years experienced Teacher Educators differ in their level of professional development. It is also observed from the table that, the male teacher educators, Arts subject and below 10 years experienced teachers have higher mean of professional development than their counterparts. Further, Further, graphical representation of above data is represented vide figure -2.



3. **Objective-3: To study significant relationship between scientific temper and professional development of different categories of Teacher Educators.**

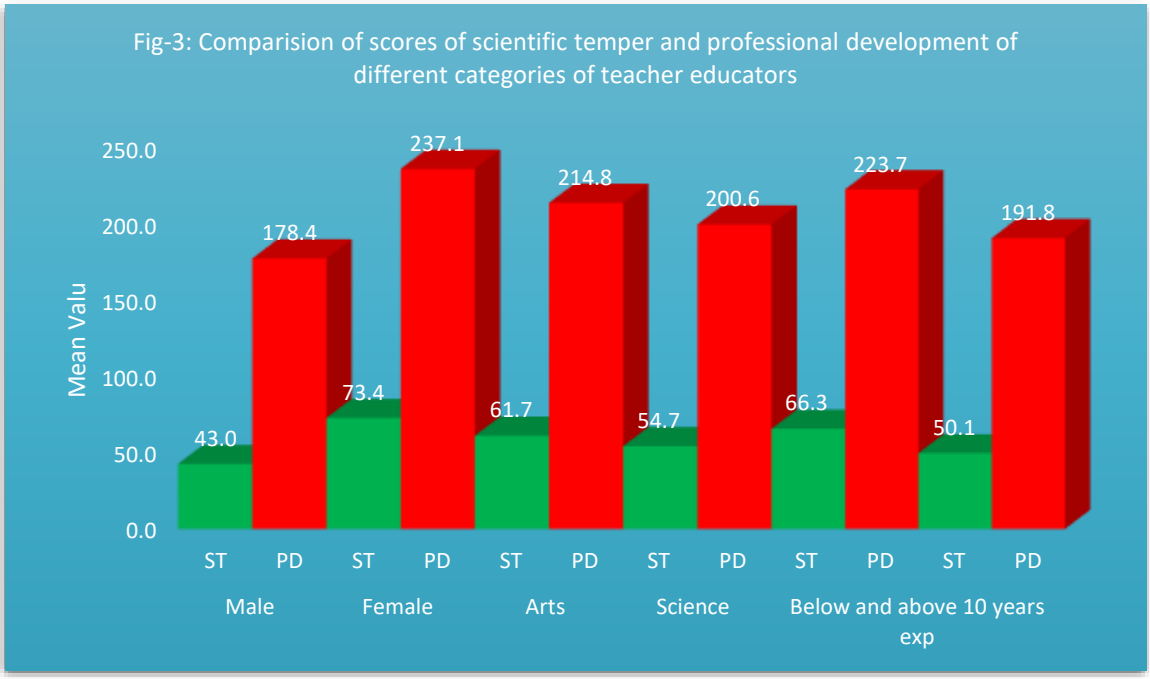
Table-3

The r-value of scores of scientific temper and professional development of different categories of teacher educators

Variable	Type of sample	N	Mean	SD	'r' Value
Male teacher educators	Scientific temper	80	42.99	8.467	0.926
	Professional development	80	178.38	16.687	
Female teacher educators	Scientific temper	80	73.38	9.797	0.927
	Professional development	80	237.06	18.866	
Arts teacher educators	Scientific temper	80	61.66	18.330	0.985
	Professional development	80	214.80	35.442	
Science teacher educators	Scientific temper	80	54.70	16.574	0.973
	Professional development	80	200.64	31.947	
Teacher educators having below 10 years teaching experiences	Scientific temper	80	66.30	16.241	0.977
	Professional development	80	223.69	31.867	
Teacher educators having above 10 years teaching experiences	Scientific temper	80	50.06	15.257	0.732
	Professional development	80	191.75	29.092	

(Table value of r = 0.320 is at 0.05 level of significance and 156 degree of freedom)

A significant and positive relationship was observed between scientific temper and professional development of all demographic variables of teacher educators (r=0.926, 0.927, 0.985, 0.973, 0.977 and 0.732) at 5% level of significance. Hence, the null hypothesis-3 is rejected and alternative hypothesis is accepted. It means that, scientific temper and professional development of all demographic variables of teacher educators are dependent on each other. In another words, the scientific temper scores are increases or decreases with increase or decrease in professional development scores of counter parts teacher educators.



DISCUSSION:

Major Findings of the study are:

1) **There is no significant difference between the means of scientific temper of different variables of Teacher Educators**

It is evident from table 4.1 that there is significant difference between the means of demographic variables like male and female, Arts and science and Below and above 10 years experienced Teacher Educators on scientific temper Scale ('t' = 48.209, 10.702 and 4.751 is significant). From above result concluded that the demographic variables like male and female, Arts and science and Below and above 10 years experienced Teacher Educators differ in their level of scientific temper. Eswari, P.J., and Manickavasagan, T. (2019) in their study found that there is no significant difference between Rural Urban, Male and Female students with reference to their Scientific Temper.

2) **There is no significant difference between professional developments of different variables of Teacher Educators.**

It is evident from table 4.1 that there is significant difference between the means of demographic variables like male and female, Arts and science and Below and above 10 years experienced Teacher Educators on professional development Scale ('t' = 48.209, 10.749, and 5.440 is significant). From above result concluded that the demographic variables like male and female, Arts and science and below and above 10 years experienced Teacher Educators differ in their level of professional development. The study by Sharma (2019) found that there isn't any significant difference regarding the professional commitment of the teacher educators in relation to the stream (science and arts) as well as teaching experience.

3) **There is no significant relationship between scientific temper and professional development of Teacher Educators.**

A significant and positive relationship was observed between scientific temper and professional development of all demographic variables of teacher educators (r=0.926, 0.927, 0.985, 0.973, 0.977 and 0.732) at 5% level of significance. It means that, scientific temper and professional

development of all demographic variables of teacher educators are dependent on each other. In another words, the scientific temper scores are increases or decreases with increase or decrease in professional development scores of counter parts teacher educators.A study conducted on scientific temper of higher secondary school teachers by John (2003). The Findings of the study revealed that scientific temper of higher secondary school teachers is significantly related with academic performance.

Conclusion:

In this way we can conclude that scientific temper is essential to an individual to lead a smooth and comfortable life in the society. An individual with good scientific temper can understand the phenomena of nature and human behavior and accordingly in their own family as well as in the society in which they lives. The scientific temper also plays a major role in moulding teacher trainees. The facilities like library, laboratory, audio- visual aids and exposure to eminent personalities, participation in fairs, exhibitions' etc., will help in the inculcation and promotion of scientific temper in the teacher education. This study supports to above all aspects.

"Professional development of teacher educators is not an event, rather it is a continuous process", this is a common statement written in most of the documents dealing with professional development of teacher educators. There is no doubt that teaching is a profession and has certain professional obligations. Sometimes these obligations are written in terms of code of conduct or many times these are mere conventions. Professional development of teachers does not include giving them only an opportunity to learn a new concept or adopt a new teaching learning methodology, rather it also focus on developing their competencies to deal with changing scenario of teaching learning process and adopt the best for the benefit of learners. Professional development brings changes in teacher's approach, attitude, understanding and practice to enhance level of learning. This study supports to above all aspects.

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