

# A STUDY ON ENVIRONMENTAL COMPETENCIES OF TEACHER TRAINEES

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## ABSTRACT

*The present study aimed at to study the environmental competencies of B.Ed. teacher trainees. The study was conducted on the sample of 600 teacher trainees of Guntur and Chittoor district of Andhra Pradesh. The normative survey method had been used for the study. Environmental competencies scale was constructed by the researcher. The findings of the study revealed that out of 600 teachers trainees 156 (26.00%) teacher trainees possessed low level of environmental competencies, 272 (45.33%) teacher trainees possessed moderate level of environmental competencies and 172 (28.67%) teacher trainees possessed high level of environmental competencies. There is a significant difference in the environmental competencies of male and female teacher trainees. There is no significant difference in environmental competencies of rural and urban teacher trainees. There is no significant difference in the environmental competencies of government and private teacher trainees. There is no significant difference in the environmental competencies of science and arts subject teacher trainees. There is a significant difference in the environmental competencies of graduate and post graduate teacher trainees. There is a significant difference in the environmental of competencies of teacher trainees of literate and illiterate parents.*

**Keywords:** Environment, Competency, Environmental Education, Teacher Trainees

## Introduction

Population explosion on the earth creates many environmental hazards like pollution, depletion of natural resources, deforestation, global warming, ozone depletion, acid rains, etc. Day by day, the density of these environmental problems has increased due to over population, if this situation continues as long as on the earth the survival of human life on the earth is tremendously difficult. So, there is a need of the hour to create environmental awareness among the people to conserve and protect the environment to do so environmental education takes a key role to create environmental awareness among people. The Finnish National Commission in a seminar held in 1974 has said that “Environmental education is a way of implementing the goals of environmental protection. Environmental education is not a separate branch of science or subject of study; it should be carried out according to the principles of lifelong integral education.” The active execution of environmental education is depends upon the availability of qualified and trained teacher. Teacher should acquire proper environmental knowledge, skills and environmental competencies during their trainee Programme. Environmental competence refers to learning about the environment. Environmental Competencies can be defined as competencies for ecological and environmental safety. Knowledge, attitudes and skills about ecological system and environment such as keeping clean the available environment, management of ecological resources, being aware of ecosystem, feasible uses of natural resources, availability of natural resources can be defined as Environmental competencies . Burns & Bell (2011) also mentioned that a competent environmental education teacher could apply the knowledge, and skills required for practicing environmental education and effectively practice and assist students in reaching the objective of environmental education. Environmentally competent teacher can only teach environmental education in a meaningful way to develop positive environmental attitude among the students in order to protect the environment. Through his actions environmentally competent teacher plays an effective role in environmental education, he has an ability to influence the minds of the students and the public towards environmental protection. To teach environmental education efficiently the teacher trainees should enhance their teaching skills and environmental competencies at their training Programme. For effective teaching of environmental education the teacher trainee should be aware of the concept and components of environment including ecosystem, Pollution, environmental degradation and sustainable development. The teacher trainees must be capable of applying knowledge of ecological foundations to provide alternative solutions to the environmental problems. They must be able to select and apply the proper curricular materials and

strategies which develops awareness, attitude, skills and competencies in the students about environmental problems and inspires them to solve those issues. Teacher trainees should be competent on environmental issues and to provide alternative solutions. To teach environmental education an effective manner teacher should be aware of different teaching methods like case studies, project based learning, problem solving based learning. In the present context of environmental problems and concerns, there is a need of the hour for present study "*A Study on Environmental Competencies of Teacher Trainees*".

### Review of related Literature

Yelena V. Ponomarenko (2016) describe the study on Students' "Environmental Competence Formation as a Pedagogical Problem". The results allowed developing assessment and diagnosis system of students' environmental competence formation. System's application in the course of the experiment showed that 77% of the participants have the environmental competence formed at a low level. It is concluded that students' environmental competence formation must direct the pedagogical efforts not so much on the individual components formation of environmental competence as on functional and structural relationships' formation and development between them.

Genalyn Panganiban. Lualhati (2017) conducted a study on "Filipino Students Teachers' Environmental Competencies: Basis for Development of a training Module". The results of the study were the pre-service teachers strongly agreed that they can make learners aware of the cultural activities that may have profound impact on the environment using developed curricular materials and strategies. The assessment of the respondents on level of competency on Environmental Education Content in terms of investigation and evaluation. Study determined the level of competency of pre-service elementary teachers along with ecological foundations, conceptual awareness, investigation and evaluation and environmental action skills. Olaya Álvarez-García, et.al. (2017) conducted a study on "Assessing Environmental Competencies of Primary Education Pre-Service Teachers in Spain: a Comparative Study between two Universities" The results of the study were no significant differences were observed in the results related to the greening level of the training programmes. Pre-service teachers have insufficient environmental knowledge, but with quite positive, responsible attitudes towards environmental issues, and pro- environmental actions that could be categorized as moderate.

### Objectives of the Study

1. To identify the levels of environmental competencies of teacher trainees.
2. To find out the difference in the environmental competencies of teacher trainees with respect to gender, locality, management, subject, qualification and parental education.

### Hypotheses of the Study

1. There is no significant difference in the environmental competencies of male and female teacher trainees.
2. There is no significant difference in the environmental competencies of rural and urban teacher trainees.
3. There is no significant difference in the environmental competencies of government and private teacher trainees.
4. There is no significant difference in the environmental competencies of arts and science teacher trainees.
5. There is no significant difference in the environmental competencies of graduate and post graduate teacher trainees.
6. There is no significant difference in the environmental competencies of teacher trainees of literate and illiterate parents.

### Methodology of the Study

The normative survey method was used for this study. The study was conducted on the sample of 600 teacher trainees of Guntur and Chittoor district of Andhra Pradesh. The stratified random sampling technique was used in selecting the sample. The investigator constructed and validated the scale namely "Environmental Competencies Scale". The scale comprises of 56 statements and each item provide five responses. The responses were expressed on a five-point scale, strongly agree, agree, undecided, disagree, strongly disagree and weights of 5,4,3,2,1 are favorable statements and the reverse in unfavorable statements. The reliability of the environmental competencies scale was calculated as 0.92.

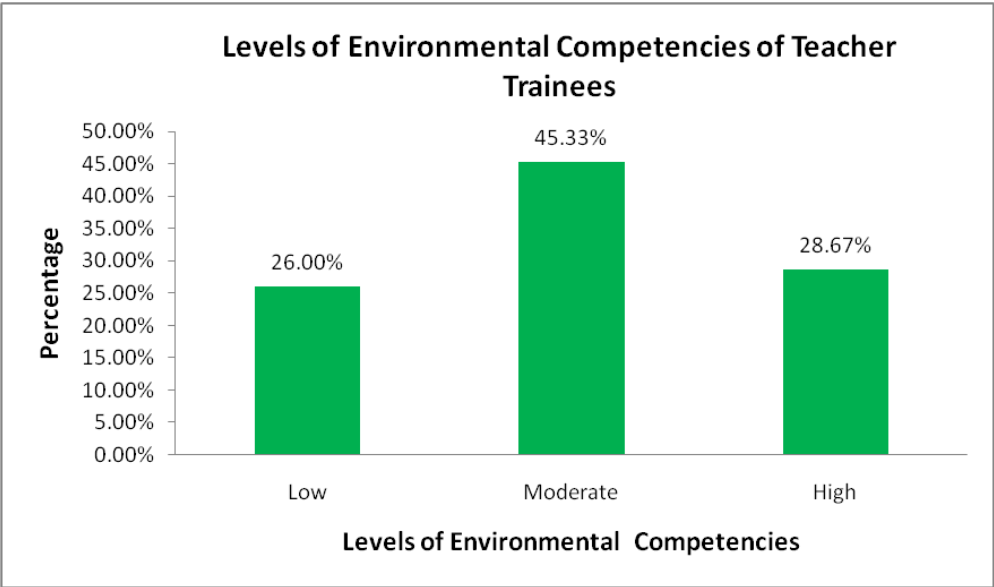
### Statistical Techniques used

For the analysis of the data Mean, S.D. and the 't' test were used to in this study.

Analysis and Interpretation of Data

Table 1: Levels of Environmental Competencies of Teacher Trainees

S. No	Teacher Trainees		Level of Environmental Competencies
	No. of Students	Percentage %	
1	156	26.00%	Low
2	272	45.33%	Moderate
3	172	28.67%	High



From the table - 1, it was found that the number and percentage of teacher trainees falling under high, moderate and low level of environmental competencies. It indicated that out of 600 teachers trainees 156 (26.00%) teacher trainees possessed low level of environmental competencies, 272 (45.33%) teacher trainees possessed moderate level of environmental competencies and 172 (28.67%) teacher trainees possessed high level of environmental competencies. Thus there is different levels of environmental competencies. Hence the formulated hypotheses was rejected. It was observed that the more number of teacher trainees hold moderate level of environmental competencies.

Table 2: Comparison of Environmental Competencies of Male and Female Teacher Trainees

Variable	Sample	Sample size (N)	Mean	S.D.	Cal. t- value
Gender	Male	300	208.61	18.58	2.01*
	Female	300	205.63	17.66	

\* Significant at 0.05 level

From the table -2, it is obvious that the calculated t – value (2.01) is greater than the table value 1.96 at 0.05 level of significance with regard to gender on environmental competencies of teacher trainees. This indicates that there is a significant difference in the environmental competencies of male and female teacher trainees. Hence the formulated hypothesis was rejected. It was observed that female teacher trainees had high level of environmental competencies than the male teacher trainees.

Table 3: Comparison of Environmental Competencies of Rural and Urban Teacher Trainees

Variable	Sample	Sample size (N)	Mean	S.D.	Cal. t- value
Locality	Rural	300	206.09	18.13	1.38@
	Urban	300	208.14	18.19	

@ Not Significant at 0.05 level

From the table - 3, it is inferred that the calculated t – value (1.38) is less than the table value 1.96 at 0.05 level of significance with regard to locality on environmental competencies of teacher trainees. This

indicates that there is no significant difference in environmental competencies of rural and urban teacher trainees. Hence the formulated hypothesis was accepted. The variable locality was not influenced on environmental competencies of teacher trainees.

**Table 4: Comparison of Environmental Competencies of Government and Private Teacher Trainees**

Variable	Sample	Sample size (N)	Mean	S.D.	Cal. t- value
Management	Government	300	206.37	17.95	1.00@
	Private	300	207.86	18.39	

@ Not Significant at 0.05 level

From the table – 4, it is inferred that the calculated t – value (1.00) is less than the table value 1.96 at 0.05 level of significance with regard to management on environmental competencies of teacher trainees. This indicates that there is no significant difference in the environmental competencies of government and private teacher trainees. Hence the formulated hypothesis was accepted. The variable management was not influenced on environmental competencies of teacher trainees.

**Table 5: Comparison of Environmental Competencies of Science and Arts Teacher Trainees**

Variable	Sample	Sample size (N)	Mean	S.D.	Cal. t- value
Subject	Science	314	207.99	18.27	1.24@
	Arts	286	206.15	18.04	

@ Not Significant at 0.05 level

From the table – 5, it is inferred that the calculated t –value (1.24) is less than the table value 1.96 at 0.05 level of significance with regard to subject on environmental competencies of teacher trainees. This indicates that there is no significant difference in the environmental competencies of science and arts subject teacher trainees. Hence the formulated hypothesis was accepted. The variable subject was not influenced on environmental competencies of teacher trainees.

**Table 6: Comparison of Environmental Competencies of Graduation and Post Graduation Teacher Trainees**

Variable	Sample	Sample size (N)	Mean	S.D.	Cal. t- value
Qualification	Graduation	340	204.76	18.599	2.79**
	Post graduation	260	208.92	17.660	

\*\* Significant at 0.01 level

From the table – 6, it is inferred that the calculated t – value (2.79) is greater than the table value 2.58 at 0.01 level of significance with regard to qualification on environmental competencies of teacher trainees. This indicates that there is a significant difference in the environmental competencies of graduate and post graduate teacher trainees. Hence the formulated hypothesis was rejected. It was observed that the post graduate teacher trainees have high level of environmental competencies than the graduate teacher trainees.

**Table 7: Comparison of Environmental Competencies of Teacher Trainees of Literate and Illiterate parents**

Variable	Sample	Sample size (N)	Mean	S.D.	Cal. t- value
Educational Status of Parents	Literate	364	205.89	19.116	2.06*
	Illiterate	236	209.01	16.480	

\*Significant at 0.05 level

From the table – 7, it is inferred that the calculated t – value (2.06) is greater than the table value 1.96 at 0.05 level of significance with regard to the educational status of parents on environmental competencies of teacher trainees. This indicates that there is a significant difference in the environmental of competencies of teacher trainees of literate and illiterate parents. Hence the formulated hypothesis was accepted. It was observed that the teacher trainees of literate parents had better environmental competencies than the teacher trainees of illiterate parents.

## Major Findings

1. Out of 600 teachers trainees 156 (26.00%) teacher trainees possessed low level of environmental competencies, 272 (45.33%) teacher trainees possessed moderate level of environmental competencies and 172 (28.67%) teacher trainees possessed high level of environmental competencies.
2. There is a significant difference in the environmental competencies of male and female teacher trainees.
3. There is no significant difference in environmental competencies of rural and urban teacher trainees.
4. There is no significant difference in the environmental competencies of government and private teacher trainees.
5. There is no significant difference in the environmental competencies of science and arts subject teacher trainees.
6. There is a significant difference in the environmental competencies of graduate and post graduate teacher trainees.
7. There is a significant difference in the environmental of competencies of teacher trainees of literate and illiterate parents.

## Conclusions

From the above results it was observed that the more number of teacher trainees hold moderate level of environmental competencies. Female teacher trainees had high level of environmental competencies than the male teacher trainees. The variables locality, management and subject were not influenced on environmental competencies of teacher trainees. Post graduate teacher trainees have high level of environmental competencies than the graduate teacher trainees. Teacher trainees of literate parents had better environmental competencies than the teacher trainees of illiterate parents.

## Educational Implications

Environmental Education is an interdisciplinary subject, it can solves many environmental problems which are faced by the human beings today globally like environmental Pollution, global warming, greenhouse effect ozone depletion etc. Environmental Education can develops people awareness, attitudes, skills and competencies towards environment and it also enhances the sensitivity and the concern of the people towards their immediate surroundings. The fruitful implementation of environmental education depends upon the availability and involvement of large number of environmentally trained teachers. Teacher acquired knowledge, pedagogical skills and competencies related to the environmental education at the time of teacher training course. Since teachers play a key role in the environmental education, he should have adequate environmental knowledge, environmental awareness, positive environmental attitude and environmental competencies to achieve the objectives of environmental education. Therefore the effectiveness of teaching environmental education in schools depends on the knowledge, attitudes and skills of the teacher. Teacher training institutions should take the accountability to organize orientation programmes, refresher courses, conferences, Seminars and workshops on environmental problems and solutions, so that qualitative progress of teacher trainees should take place. Information and Communication Technology (ICT) should be used in teacher training colleges to teach environmental education effectively, subject experts from outside of the institutions may also be invited to train teacher trainees. It can be helpful the trainees to improve their subject. Thus teacher training institutions effectively prepare teacher trainees to achieve the goals of environmental education.

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