CHAPTER V

5.00 SUMMING UP

5.10 OVERVIEW

This chapter provides the summary of the research. It comprises of nine sections. The first section outlines the overview of the entire chapter. The second section highlights the introduction of the study. The third section brings out restatement of the problem and states objectives and hypotheses of the study. The fourth section describes the sampling design. The fifth section brings out the instrumentation of the study. The sixth section describes the data analysis. The seventh section furnishes the findings and implications of the study. The eighth section brings out the limitations of the study. The ninth section identifies the scope for further research in the field.

5.20 INTRODUCTION

Education is the aggregate of all the processes by means of which a person develops abilities, attitudes and other forms of behavior of positive value in the society in which he lives. Education is a systematic instruction, schooling or training given to the young in preparation for the work of life by extension, similar instruction or training obtained in adult age.

Teacher Education is a social enterprise and has the dynamic qualities of social events. It involves a variety of factors, such as teacher-educator characteristics, training experiences, student-teacher characteristics, curriculum and textual materials, practicing schools, institutional characteristics, community characteristics and many more, which interact in complex combinations when it comes to understanding the teaching-learning-process and learning outcomes.

Teacher Education Institutions such as NCERT and NCTE at national level, DTERT and boards of education at State level, DIETs and TTIs at the district level should establish effective linkages both horizontally and vertically, establishing ‘net-working complexes’, or forming comprehensive institutions of teacher education under one management, whatever feasible.

Elementary education which is the foundation stone, on which the whole edifice of education stands, is only the first step towards the ultimate goal of lifelong learning and is a main gateway to higher education. Elementary
education develops the capacity to learn, read and write and channelise the child’s energy in a proper direction.

Elementary school teachers are trained in two types of institutions. One is DIET and another one is TTI. Both are conducting examinations and offer Diploma in Teacher Education (D.T.Ed).

Teaching using pedagogy involves assessing the educational levels of the students on particular skills. Understanding the pedagogy of the students in a classroom involves using differentiated instruction, as well as, supervision to meet the needs of all students in the classroom. Pedagogy can be thought of in two manners. First, teaching itself can be taught in many different ways, hence, using pedagogy of teaching styles. Second, the pedagogy of the learners comes into play when a teacher assesses the pedagogic diversity of his/her students and differentiates for the individual student’s accordingly. Thus instruction with objectives plays an important role in developing knowledge and skill among the learners.

The domain of teacher competence which receives a great deal of attention from Science education researchers is the one pertaining to professional competencies. Professional competencies in teaching refer to the pedagogical knowledge and skills needed for the successful practice of teaching. The typical route by which a teacher acquires professional competencies is a standard, preservice teacher education program. This route is sometimes referred to as the professional route.

In Competency Based Teacher Education greater emphasis has been laid on performance based competencies rather than cognitive based competencies. What the teachers know about teaching seems less important than their ability to teach and bring about a change in the pupils.

Five types of competencies have been defined in Competency Based Teaching. They are

The first—“Cognitive Based Competencies”—define knowledge and intellectual skills and abilities that are expected of the learner. Secondly, for “Performance Based Competencies” –the teacher demonstrates that he or she can do something rather than simply know something. While contingent upon knowledge are competencies that define skills and overt action. The third class is referred to as “Consequence Based Competencies”. To demonstrate competence the person is required to bring about a change in others. The fourth type is “Affective”. These are expected values and attitudes tend to
resist the specificity and are more difficult to assess than the three types. The fifth type, “Exploratory Competency” does not fit well into the four types, since; the definition of desired learner outcomes is defaulted. Instead, activeness that promises significant learning is specified.

Science teaching in schools today has acquired a new and exciting dimension. It requires teachers to be open minded, innovative and ever alert in their approach to teaching. The teaching of science is concerned, with giving our pupils the skills of enquiry and investigation. Since skills cannot really be ‘given’ and because acquiring these skills involves practice, modern methods of science teaching are child-centered. They aim to give the pupils as much ‘hands on ‘experience as possible. The teacher organizes these experiences through planned activities, or what we call ‘processes’.

The attitude towards teaching science is defined as the attitude towards the teaching of the universe of science content and being measured in terms of its favorableness estimated from the scores obtained by the subject on an attitude scale towards science teaching. It includes developing scientific attitude through experiential learning.

Philosophy of education is the study of the purpose, process, nature and ideals of education. Values lie at the core of life and human action. These have been considered important and fundamental dimensions of an individual. Values may be regarded as importance ratings which people attach to things, conditions and circumstances. They may also be regarded as goal objects to which people orient their thinking, actions and feelings. As such they become important organizing themes in the behavior of individuals.

The values categories may be described briefly as: 1) Theoretical - characterized by a dominant interest in the discovery of truth and by an empirical, critical, rational, 'Intellectual' approach. 2) Economic – emphasizing useful and practical values, characterized by a dominant in money matters.3) Aesthetic – placing the highest values on form and harmony, showing an interest in and enjoying fine arts and music etc. 4) Social – love of and service to people, consisting mainly of altruism and philanthropy. 5) Political – primarily interested in personal power, influence and renown. 6) Religious – faith in God and interest in activities and rituals concerned with one’s own religion.

Allport (1961) defines Personality “as the dynamic organizations within the individual of those psycho-physical systems that determines his unique
adjustment to his environment.” According to Cattell (1950), Personality is that which permits a prediction of what a person will do in a given situation. Raymond Cattell’s developed 16 Personality trait names assigned to Factor A (warmth), Factor B (reasoning), Factor C (emotional stability), Factor E (dominance), Factor F (liveliness), Factor G (rule-consciousness), Factor H (social boldness), Factor I (sensitivity), Factor L (vigilance), Factor M (abstractedness), Factor N (privateness), Factor O (Apprehension), Factor Q1 (openness to change), Factor Q2 (Self reliance), Factor Q3(perfectionism) and Factor Q4 (Tension).

There are Forty-five studies were surveyed in this study. Out of Forty-five studies twenty two studies were conducted in India and the remaining twenty three studies in foreign countries. Most of Indian studies were made on Teaching skills, classroom performance, Self-perception and Academic Achievement, Personality and Teaching competency. It is also found that most of foreign studies were made on Traditional Classroom Method and Competency Based Training Approach, Teacher Competency, Testing practices and perceptions, teacher classroom assessment and performance assessment, Pedagogic competency, and Attitudes toward science and science teaching as reflected in the science autobiographies. The review helps in reaching a number of important specific goals and helps in limiting the individuals’ research problem and defining it better. It gives the researchers a great deal of insight into the methods, measures, subjects and approaches used by other research workers and thus lead to significant improvement of his/ her design. Although research reports make up the most important source of information, the researcher covers in his/ her review, opinion articles related to his / her topic. The above studies have guided the investigator to formulate objectives for the present study in relation to the background variables.

The investigator has been a physics Teacher / Lecturer / Teacher Educator for the past 16 years and handling the classes for the students of different categories. The investigator has been the teacher educator in District Institute of Education and Training (DIET), Pudukkottai since 2000. In the year 2003, there were two categories of student teachers admitted in all DIETs in Tamil Nadu. One set of student teachers were regular students having age less than 25 years and having good academic record. The other set of student teachers were having age between 25 and 35 years. They had already studied their
Diploma in Teacher education course in the unrecognized institutes in Tamil Nadu and discontinued their studies. The government of Tamil Nadu had ordered closure of these institutes due to lack of infrastructure, staff, etc. Later the government of Tamil Nadu provided an opportunity to all the student teachers who had studied in unrecognized institutes in all the districts. Hence two categories of different student teachers were admitted in the year 2003. The investigator has anxious to identify the difference between the above two categories of the student teachers in terms of the Knowledge competency, Performance competency, Consequence competency, Attitude towards Teaching Science, Personal values and Personality factors. Hence this study.

5.30 THE PROBLEM RESTATED

The problem of the study is stated in question form as under.

“To what extent is Assessment of student teachers in Science related with Competency Based Teacher Education Approach”?

5.3.1 OBJECTIVES

1. to find out the difference between Men and Women student teachers of DIET and TTI in Knowledge Competency, Performance Competency, Consequence Competency, Attitudes towards teaching science, Personal Values and Personality Factors.

2. to find out the relationship of Knowledge Competency with Performance Competency, Consequence Competency, Attitudes towards teaching science, Personal Values and Personality Factors of DIET and TTI student teachers.

3. to find out the relationship of Performance Competency with Consequence Competency, Attitudes towards teaching science, Personal Values and Personality Factors of DIET and TTI student teachers.

4. to find out the relationship of Consequence Competency with Attitudes towards teaching science of DIET and TTI student teachers.

5. to find out the relationship of Attitudes towards teaching science with Personal Values and Personality Factors of DIET and TTI student teachers.
6. to structure profiles showing the difference between Men and Women student teachers of DIET and TTI in Knowledge Competency, Performance Competency, Consequence Competency, Attitudes towards teaching science, Personal Values and Personality Factors.

3.2.2 HYPOTHESES

1. There is significant difference between Men and Women DIET and TTI student teachers in Knowledge Competency, Performance Competency, Consequence Competency, and Attitudes towards teaching science, Personal Values and Personality Factors.

2. Knowledge Competency has significant positive relationship with Performance Competency, Consequence Competency, and Attitudes towards teaching science, Personal Values and Personality Factors of DIET and TTI student teachers.

3. Performance Competency has significant positive relationship with Consequence Competency, Attitudes towards teaching science, Personal Values and Personality Factors of DIET and TTI student teachers.

4. Consequence Competency has significant positive relationship with Attitudes towards teaching science of DIET and TTI student teachers.

5. Attitude towards teaching science has significant positive relationship with Personal Values and Personality Factors of DIET and TTI student teachers.

6. Men and Women student teachers of DIET and TTI are differ significantly in terms of Knowledge Competency, Performance Competency, Consequence Competency, and Attitudes towards teaching science, Personal Values and Personality Factors.

5.40 SAMPLE DESIGN

The investigator had chosen 100 Men and Women student teachers from DIET and TTI as a subject to pilot study for the purpose of validating the constructed tools. For the final study the investigator selected 800 student teachers by random sampling technique from various DIETs and TTIs. This sample consists of 400 student teachers in DIETs and 400 student teachers’ in TTIs. Out of these, 400 student teachers are Men and 400 student teachers are Women. The DIET sample consists of 200 student teachers having age
below 25 years and 200 student teachers having age above 25 years. Out of 200 student teachers having age below 25 years, 100 are Men and 100 are Women. Out of 200 student teachers in DIETs having age above 25 years, 100 are Men and 100 are Women. The TTI sample consists of 200 Men student teachers and 200 Women student teachers.

5.50 INSTRUMENTATION

This section deals with the development of tools of research employed in this study. The present study needed an Achievement test in science education to evaluate the knowledge competency of the student teachers and a Teaching competency scale to assess the performance competency of student teachers in science teaching. It also needed an achievement test for students of VI Standard in science to assess the consequence competency of student teachers and an Attitude test to assess the attitude towards teaching Science of student teachers. These tools were constructed and validated by the investigator. In addition to Cattell’s 16 P.F. Questionnaire and Ahluwalia’s Teacher values Inventory were also administered to the student teachers to assess the personal values and personality traits.

5.60 DATA ANALYSIS

The administered tools were scored and the individual scores were tabulated and processed for interpretation on the nature of the existence of the conditions pertaining to present problem on task. The investigator employed the ‘t’ test – to find the significance of difference between the means of the two groups, Correlation- to find out the relationship between variables, Multiple regressions – to find the contributions of more than two variables to the other and the investigator used, Stanine to draw profiles of two groups. The sample had been analyzed splitting by into various small groups like Men and Women (DIET- Above and Below 25 Years), TTI Men and Women, Men and Women (Global), DIET and TTI (Global) to find out features that were in contrast in proficiency.
5.70 FINDINGS

5.7.1 DIFFERENTIAL STUDIES

An interpretation of the data analysis in this section follows:

**Knowledge Competency, Performance Competency, Consequence Competency and Attitudes towards teaching science of Men and Women student teachers of DIET and TTI.**

**Men Vs Women (DIET- below 25 Years):** There is a significant difference between the Men and Women student teachers (DIET- below 25 Years) in Knowledge Competency, Performance Competency and Attitude towards Teaching Science at 0.001 level of significance and Consequence Competency at 0.01 level of significance. Women student teachers have higher level of Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science than Men student teachers.

**Men Vs Women (DIET-above 25 Years):** There is a significant difference between the Men and Women student teachers (Above 25 Years) in Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science at 0.001 level of significance. Men student teachers have higher levels of Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science than Women student teachers.

**Men Vs Women (DIET-Global):** There is no significant difference between the Men and Women (DIET-Global) student teachers in Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science. Men and Women (Global) student teachers have same levels of Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science.

**Men Vs Women (TTI-Global):** There is no significant difference between the Men and Women (TTI-Global) student teachers in Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science. Men and Women (Global) student teachers have same levels of Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science.
**DIET Vs TTI (Men):** There is a significant difference between the DIET and TTI student teachers (Men) in Knowledge Competency, Consequence Competency and Attitude towards Teaching Science at 0.01 level of significance and Performance Competency at 0.05 level of significance. DIET student teachers have higher levels of Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science than TTI student teachers.

**DIET Vs TTI (Women):** There is no significant difference between the DIET and TTI student teachers (Women) in Performance Competency. But there is a significant difference between the DIET and TTI student teachers (Women) in Knowledge Competency and Attitude towards Teaching Science at 0.05 level of significance and Consequence Competency at 0.001 level of significance. DIET student teachers have higher levels of Knowledge Competency, Consequence Competency and Attitude towards Teaching Science than TTI student teachers. It is also found that DIET and TTI student teachers have same levels of Performance Competency.

**Men Vs Women (Global):** There is no significant difference between the Men and Women student teachers (Global) in Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science. Men and Women student teachers have same levels of Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science.

**DIET Vs TTI (Global):** There is a significant difference between the DIET and TTI student teachers (Global) in Knowledge Competency, Consequence Competency and Attitude towards Teaching Science at 0.001 level of significance and Performance Competency at 0.05 level of significance. DIET student teachers have higher levels of Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science than TTI student teachers.
Personal Values (Theoretical, Economical, Religious, Aesthetic, Political and Social Values) of Men and Women student teachers of DIET and TTI.

**Men Vs Women (DIET - below 25 Years):** There is no significant difference between the Men and Women student teachers (DIET - below 25 Years) in Theoretical, Religious, and Social Values. There is a significant difference between the Men and Women student teachers in Economical values at 0.01 level of significance, in Aesthetic and Political values at 0.001 level of significance. Women student teachers have higher level of Economical and Aesthetic Values than Men student teachers. But Men student teachers have higher level of Political Values than Women student teachers.

**Men Vs Women (DIET - above 25 Years):** There is no significant difference between the Men and Women student teachers (DIET - above 25 Years) in Theoretical Values. There is a significant difference between the Men and Women student teachers in Economical, Religious, Aesthetic, Political and Social Values at 0.001 level of significance. Women student teachers have higher level of Economical, Religious and Social Values than Men student teachers. But Men student teachers have higher level of Aesthetic and Political Values than DIET Women student teachers.

**Men Vs Women (DIET-Global):** There is no significant difference between the Men and Women (DIET-Global) student teachers in Theoretical, Economical, Religious, Aesthetic, and Social Values. But there is a significant difference between the Men and Women student teachers in Political Values at 0.01 level of significance. Men and Women student teachers have same levels of Theoretical, Economical, Religious, Aesthetic, and Social Values. The Men student teachers are significantly superior to the Women student teachers in Political Values.

**Men Vs Women (TTI-Global):** There is no significant difference between the Men and Women (TTI-Global) student teachers in Theoretical, Economical, Religious, Aesthetic, Political and Social Values. Men and Women student teachers have same levels of Theoretical, Economical, Religious, Aesthetic, Political and Social Values.

**DIET Vs TTI (Men):** There is no significant difference between the DIET and TTI student teachers (Men) in Theoretical, Religious, Aesthetic, and Political Values. But there is a significant difference between the DIET and TTI student
teachers (Men) in Economical Values at 0.01 level of significance and in Social Values at 0.05 level of significance. DIET and TTI student teachers have same levels of Theoretical, Religious, Aesthetic, and Political Values. DIET student teachers have higher level of Social Values than TTI student teachers. TTI student teachers have higher level of Economical Values than DIET student teachers.

**DIET Vs TTI (Women):** There is no significant difference between the DIET and TTI student teachers (Women) in Theoretical, Economical, Religious, Aesthetic, Political and Social Values. DIET and TTI student teachers (Women) have same levels of Theoretical, Economical, Religious, Aesthetic, Political and Social Values.

**Men Vs Women (Global):** There is no significant difference between the Men and Women student teachers (Global) in Theoretical, Economical, Religious, and Social Values. But there is a significant difference between the Men and Women student teachers (Global) in Aesthetic and Political Values at 0.01 level of significance. Woman student teachers have higher level of Aesthetic Values than Men student teachers. But Men student teachers have higher level of Political Values than Women student teachers.

**DIET Vs TTI (Global):** There is no significant difference between the DIET and TTI student teachers (Global) in Theoretical, Religious, Aesthetic, Political and Social Values. But there is a significant difference between the DIET and TTI student teachers (Global) in Economical Values at 0.05 level of significance. DIET and TTI student teachers have same levels of Theoretical, Religious, Aesthetic, Political and Social Values. TTI student teachers are significantly superior to the DIET student teachers in Economical Values.

**Personality Factors of Men and Women student teachers of DIET and TTI.**

**Men Vs Women (DIET- below 25 Years):** There is no significant difference between Men and Women student teachers (DIET - below 25 Years) in the Personality Factors of B (Reasoning), C (Emotional Stability), E (Dominance), F (Liveliness), G (Rule-Consciousness), H (Social Boldness), L (Vigilance), M (Abstractedness), N (Privateness), Q1 (Openness to Change), Q2 (Self-Reliance), and Q3 (Perfectionism). There is a significant difference between Men and Women student teachers in the personality factors of A (Warmth), I (Sensitivity), and Q4 (Tension) at 0.01 level of significance and in Factor of O.
(Apprehension) at 0.05 level of significance in favor of Women student teachers.

**Men Vs Women (DIET - above 25 Years):** There is no significant difference between Men and Women student teachers (DIET- above 25 Years) in the Personality Factors C (Emotional Stability), E (Dominance), F (Liveliness), G (Rule-Consciousness), I (Sensitivity), L (Vigilance), M (Abstractedness), N (Privateness), Q1 (Openness to Change), Q2 (Self-Reliance) and Q3 (Perfectionism). There is a significant difference between Men and Women student teachers in the personality factors of A (Warmth), B (Reasoning), O (Apprehension) and Q4 (Tension) at 0.05 level of significance in favor of Women student teachers and in Factor of H (Social Boldness) at 0.001 level of significance in favor of Men student teachers.

**Men Vs Women (DIET-Global):** There is no significant difference between Men and Women (DIET- Global) student teachers in the Personality Factors of B (Reasoning), C (Emotional Stability), E (Dominance), F (Liveliness), G (Rule-Consciousness), L (Vigilance), M (Abstractedness), N (Privateness), Q1 (Openness to Change), Q2 (Self-Reliance) and Q3 (Perfectionism). There is a significant difference between Men and Women student teachers in the personality factors of A (Warmth), I (Sensitivity), O (Apprehension) and Q4 (Tension) at 0.01 level of significance in favor of Women student teachers and in Factor of H (Social Boldness) at 0.01 level of significance in favor of Men student teachers.

**Men Vs Women (TTI-Global):** There is no significant difference between Men and Women (TTI Global) in the Personality Factors A (Warmth), C (Emotional Stability), E (Dominance), F (Liveliness), G (Rule-Consciousness), H (Social Boldness), I (Sensitivity), L (Vigilance), M (Abstractedness), N (Privateness), O (Apprehension), Q1 (Openness to Change), Q2 (Self-Reliance), Q3 (Perfectionism), Q4 (Tension). There is a significant difference between Men and Women student teachers in the personality factor of B (Reasoning) at 0.01 level of significance in favor of Women student teachers.

**DIET Vs TTI (Men):** There is no significant difference between DIET and TTI student teachers (Men) in the Personality Factors of A (Warmth), C (Emotional Stability), F (Liveliness), G (Rule-Consciousness), H (Social Boldness), L (Vigilance), M (Abstractedness), N (Privateness), Q1 (Openness to
Change), Q2 (Self-Reliance), Q3 (Perfectionism), Q4 (Tension). There is a significant difference between DIET and TTI student teachers in the personality factors of B (Reasoning), E (Dominance), I (Sensitivity) and O (Apprehension) at 0.05 level of significance in favor of TTI student teachers.

**DIET Vs TTI (Women):** There is no significant difference between DIET and TTI student teachers (Women) in the Personality Factors B (Reasoning), C (Emotional Stability), E (Dominance), F (Liveliness), H (Social Boldness), I (Sensitivity), L (Vigilance), M (Abstractedness), N (Privateness), O (Apprehension), Q1 (Openness to Change), Q2 (Self-Reliance) and Q3 (Perfectionism). There is a significant difference between DIET and TTI student teachers in the personality factors of A (Warmth) and Q4 (Tension) at 0.05 level of significance in favor of DIET student teachers and in the factor of G (Rule-Consciousness) at 0.05 level of significance in favor of TTI student teachers.

**Men Vs Women (Global):** There is no significant difference between Men and Women (Global) student teachers in the Personality Factors of A (Warmth), B (Reasoning), C (Emotional Stability), E (Dominance), F (Liveliness), G (Rule-Consciousness), H (Social Boldness), L (Vigilance), M (Abstractedness), N (Privateness), O (Apprehension), Q1 (Openness to Change), Q2 (Self-Reliance), Q3 (Perfectionism), Q4 (Tension). There is a significant difference between Men and Women student teachers in the personality factor of H (Social Boldness) at 0.01 level of significance in favor of Men student teachers and in the personality factor of I (Sensitivity), at 0.01 level of significance in favor of Women student teachers.

**DIET Vs TTI (Global):** There is no significant difference between DIET and TTI (Global) student teachers in the Personality Factors of A (Warmth), B (Reasoning), C (Emotional Stability), F (Liveliness), H (Social Boldness), I (Sensitivity), L (Vigilance), M (Abstractedness), N (Privateness), O (Apprehension), Q1 (Openness to Change), Q2 (Self-Reliance), Q3 (Perfectionism) and Q4 (Tension). There is a significant difference between Men and Women student teachers in the personality factors of E (Dominance) and G (Rule-Consciousness) at 0.05 level of significance in favor of TTI student teachers.
5.7.2 RELATIONSHIP STUDIES

Relationship of Knowledge Competency with Performance Competency, Consequence Competency and Attitudes towards teaching science

Knowledge Competency has high positive relationship with Performance Competency in the subgroup of DIET Men (below 25 Years), Women Global, TTI Global and the Sample at 0.001 level of significance, Consequence Competency in the subgroups of DIET Men (Below 25 Years), DIET Women (Above 25 Years), TTI Men, TTI Women, Men Global, Women Global, DIET Global, TTI Global and Sample at 0.001 level of significance and Attitude towards Teaching Science in the subgroups of DIET Men (Above 25 Years), DIET Men (Below 25 Years), DIET Women (Above 25 Years), TTI Men, TTI Women, Men Global, Women Global, DIET Global, TTI Global and over all Sample at 0.001 level of significance.

Knowledge Competency has substantial positive relationship with Performance Competency in the subgroups of DIET Men (Above 25 Years), DIET Women (Above 25 Years), DIET Women (Below 25 Years), TTI Men, Men Global and DIET Global at 0.001 level of significance, Consequence Competency in the subgroup of DIET Men (Above 25 Years) at 0.001 level of significance and Attitude towards Teaching Science in the subgroup of DIET Women (Below 25 Years) at 0.001 level of significance.

Relationship of Performance Competency with Consequence Competency and Attitudes towards teaching science

Performance Competency has substantial positive relationship with Consequence Competency in the subgroups of DIET Men (Above 25 Years), DIET Men (Below 25 Years), TTI Women, Men Global, Women Global, DIET Global, TTI Global and Sample at 0.001 level of significance and Attitude towards Teaching Science in the subgroups of DIET Men (Below 25 Years), DIET Women (Above 25 Years), DIET Women (Below 25 Years), TTI Women, Women Global, DIET Global, TTI Global and Sample at 0.001 level of significance.

Performance Competency has low positive relationship with Consequence Competency in the subgroups of DIET Women (Above 25 Years), DIET Women (Below 25 Years) and TTI Men at 0.001 level of significance and Attitude towards Teaching Science in the subgroups of DIET Men (Above 25 Years), TTI Men and Men Global at 0.001 level of significance.
Relationship of Consequence Competency with Attitudes towards teaching science

Consequence Competency has substantial positive relationship with Attitude towards Teaching Science in the subgroups of DIET Men (Above 25 Years), DIET Men (Below 25 Years), DIET Women (Below 25 Years), TTI Men, TTI Women, Men Global, Women Global, DIET Global, TTI Global and Sample at 0.001 level of significance.

Consequence Competency has low positive relationship with Attitude towards Teaching Science in the subgroup of DIET Women (Above 25 Years) at 0.001 level of significance.

Relationship of Knowledge Competency with Personal Values of Theoretical, Economical, Religious, Aesthetic, Political and Social Values

Knowledge Competency has negligible positive relationship with Theoretical Values in the subgroups of DIET Men, TTI Women, Men Global, DIET Global, TTI Global and Sample, Economical Values in the subgroups of DIET Men and Men Global, Religious Values in the subgroups of DIET Men, TTI Men, TTI Women, Men Global, DIET Global, TTI Global and Sample, Aesthetic Values in the subgroups of DIET Men, DIET Women, TTI Men, TTI Women, Men Global, Women Global, DIET Global, TTI Global and Sample, Political Values in the subgroups of DIET Men and Men Global and Social Values in the subgroups of DIET Men, TTI Women, Men Global, TTI Global and Sample.

Knowledge Competency has negligible negative relationship with Theoretical Values in the subgroup of TTI Men, Economical Values in the subgroups of DIET Women, TTI Men, Women Global, DIET Global, TTI Global and Sample, Political Values in the subgroups of DIET Women, TTI Men, TTI Women, Women Global, DIET Global, TTI Global and Sample and Social Values in the subgroups of DIET Women, TTI Men, Women Global and DIET Global.

Relationship of Performance Competency with Personal Values of Theoretical, Economical, Religious, Aesthetic, Political and Social Values

Performance Competency has negligible positive relationship with Theoretical Values in the subgroups of DIET Men, TTI Women and Men Global, Economical Values in the subgroups of DIET Women TTI Women and Women Global, Religious Values in the subgroups of TTI Men and TTI Global, Aesthetic Values in the subgroups of DIET Men, DIET Women, TTI Women,
Men Global, Women Global, DIET Global, TTI Global and Sample, Political Values in the subgroups of DIET Men and Men Global and Social Values in the subgroups of DIET Men, TTI Women and TTI Global.

Performance Competency has negligible negative relationship with Theoretical Values in the subgroup of DIET Women, TTI Men, Women Global, TTI Global and Sample, Economical Values in the subgroups of DIET Men, TTI Men, Men Global, DIET Global, TTI Global and Sample, Political Values in the subgroups of DIET Men, DIET Women, TTI Women, Men Global, Women Global, DIET Global and Sample, Political Values in the subgroups of DIET Women, TTI Women, Women Global, DIET Global, TTI Global and Sample and Social Values in the subgroups of DIET Men, DIET Women, TTI Men, Men Global, Women Global and DIET Global.

Relationship of Attitude towards Teaching Science with Personal Values of Theoretical, Economical, Religious, Aesthetic, Political and Social Values

Attitude towards Teaching Science has negligible positive relationship with Theoretical Values in the subgroups of DIET Men, TTI Women, Women Global and TTI Global, Religious Values in the subgroup of TTI Men, Aesthetic Values in the subgroups of DIET Women, TTI Men, TTI Women, Women Global, DIET Global, TTI Global and Sample, Political Values in the subgroup of TTI Men and Social Values in the subgroups of TTI Women, Men Global, Women Global, TTI Global and Sample.

Attitude towards Teaching Science has negligible negative relationship with Theoretical Values in the subgroup of DIET Women, TTI Men, Men Global and DIET Global, Economical Values in the subgroups of DIET Men, DIET Women, TTI Men, TTI Women, Men Global, Women Global, DIET Global, TTI Global and Sample, Religious Values in the subgroup of DIET Men, DIET Women, Men Global, Women Global, DIET Global and Sample, Aesthetic Values in the subgroups of DIET Men and Men Global, Political Values in the subgroups of DIET Men, DIET Women, TTI Women, Men Global, Women Global, DIET Global, TTI Global and Sample and Social Values in the subgroups of DIET Women, TTI Men and DIET Global.
**Relationship of Knowledge Competency with Personality Factors (16 P.F)**

Knowledge Competency has substantial positive relationship with Personality Factor of A (Warmth) in the subgroups of TTI Women at 0.001 level of significance, Factor C (Emotional Stability) in the subgroups of DIET Men (below 25 Years) at 0.001 level of significance and TTI Men, Factor E (Dominance) in the subgroups of DIET Men (below 25 Years) at a level of 0.001 significance, Factor I (Sensitivity) in the subgroups of DIET Men (below 25 Years) at 0.001 level of significance, Factor M (Abstractedness) in the subgroups of DIET Men (Above 25 Years), DIET Men (below 25 Years) and DIET Women (Below 25 Years) at 0.001 level of significance, Factor O (Apprehension) in the subgroups of TTI Men at 0.001 level of significance, Factor Q1 (Openness to Change) in the subgroups of DIET Men (below 25 Years), DIET Men (Above 25 Years), TTI Men, Men Global, TTI Global and Sample at 0.001 level of significance, Factor Q2 (Self-Reliance) in the subgroups of DIET Men (Above 25 Years), at 0.001 level of significance and Factor Q3 (Perfectionism) in the subgroups of DIET Women (Above 25 Years), TTI Men and TTI Global at 0.001 level of significance.

Knowledge Competency has low positive relation with Personality Factor of A (Warmth) in the subgroups of DIET Men (Above 25 Years), DIET Women (Below 25 Years), TTI Men, Men Global, Women Global, DIET Global, TTI Global and Sample at 0.001 level of significance and in the subgroups DIET Men (Below 25 Years) and DIET Women (Above 25 Years) at 0.01 level of significance, Factor B (Reasoning) in the subgroups of DIET Women (Above 25 Years), TTI Men, Women Global, DIET Global, TTI Global and Sample at 0.001 level of significance and in the subgroups DIET Men (Below 25 Years) and DIET Women (Below 25 Years) at 0.01 level of significance, Factor C (Emotional Stability) in the subgroups of DIET Men (Above 25 Years), Men Global, TTI Global and Sample at 0.001 level of significance, Factor E (Dominance) in the subgroups of DIET Men (Above 25 Years), DIET Women (Below 25 Years), TTI Men, TTI Women, Men Global, Women Global, DIET Global, TTI Global and Sample at 0.001 level of significance, ‘Factor F (Liveliness)’ in the subgroups of DIET Women (Above 25 Years), TTI Women, Women Global, DIET Global, TTI Global and Sample at 0.001 level of significance, in the subgroup of DIET Women (Below 25 Years) at 0.01 level of significance and in the subgroup of DIET Men (Below 25 Years) at 0.05 level of significance, Factor G (Rule-Consciousness) in the subgroups of DIET Men
(Above 25 Years), DIET Women (Above 25 Years), DIET Women (Below 25 Years), TTI Men, TTI Women, Men Global, Women Global, DIET Global, TTI Global and over all Sample at 0.001 level of significance, ‘Factor H (Social Boldness)’ in the subgroups of TTI Women and TTI Global at 0.001 level of significance, ‘Factor I (Sensitivity)’ in the subgroups of DIET Men (Below 25 Years), TTI Women, Men Global, Women Global, DIET Global, TTI Global and Sample at 0.001 level of significance and in the subgroups of DIET Men (Above 25 Years), DIET Women (Above 25 Years) and TTI Men at 0.001 level of significance, ‘Factor L (Vigilance)’ in the subgroup of TTI Women at 0.001 level of significance and in the subgroups DIET Men (Above 25 Years) and DIET Men (Below 25 Years) at 0.01 level of significance, ‘Factor M (Abstractedness)’ in the subgroups of DIET Women (Above 25 Years), TTI Women, Women Global, DIET Global, TTI Global and Sample at 0.001 level of significance, Factor N (Privateness)’ in the subgroup of DIET Women (Below 25 Years) at 0.05 level of significance, ‘Factor O (Apprehension)’ in the subgroups of DIET Women (Above 25 Years), TTI Women, Men Global, Women Global, DIET Global, TTI Global and Sample at 0.001 level of significance and in the subgroup of DIET Women (Below 25 Years) at 0.01 level of significance, ‘Factor Q1 (Openness to Change)’ in the subgroups of DIET Women (Above 25 Years), TTI Women, Women Global and DIET Global at 0.001 level of significance and in the subgroup of DIET Women (Below 25 Years) at 0.001 level of significance, Factor Q2 (Self-Reliance)’ in the subgroups of Men Global, DIET Global and Sample at 0.001 level of significance and in the subgroups of DIET Men (Below 25 Years) and TTI Women at 0.01 level of significance, ‘Factor Q3 (Perfectionism)’ in the subgroups of DIET Men (Above 25 Years), DIET Women (Below 25 Years), TTI Women, Men Global, Women Global, DIET Global, TTI Global and Sample at 0.001 level of significance and in the subgroup of DIET Men (Below 25 Years) at 0.05 level of significance and Factor Q4 (Tension)’ in the subgroups of DIET Women (Below 25 Years) and TTI Men and in the subgroup of DIET Men (Above 25 Years) at 0.001 level of significance.

Knowledge Competency has negligible positive relationship with Personality Factor of B (Reasoning) in the subgroups of DIET Men (Above 25 Years), TTI Women and Men Global, Factor C (Emotional Stability) in the subgroups of DIET Women (Above 25 Years), DIET Women (Below 25 Years), TTI Women, Women Global and DIET Global, Factor E (Dominance) in the
subgroups of DIET Men (below 25 Years) and DIET Women (Above 25 Years), Factor F (Liveliness) in the subgroups of DIET Men (Above 25 Years), TTI Men and Men Global, Factor H (Social Boldness) in the subgroups of DIET Men (below 25 Years), DIET Men (Above 25 Years), DIET Women (Below 25 Years), DIET Women (Above 25 Years), TTI Men, TTI Women, Men Global, Women Global, DIET Global and Sample, Factor L (Vigilance) in the subgroups of DIET Women (Below 25 Years), DIET Women (Above 25 Years), TTI Men, TTI Women, Men Global, Women Global, DIET Global, TTI Global and Sample, Factor N (Privateness) in the subgroups of DIET Men (below 25 Years), DIET Men (Above 25 Years), DIET Women (Above 25 Years), TTI Men, TTI Women, Men Global, Women Global, DIET Global, TTI Global and Sample, Factor O (Apprehension) in the subgroups of DIET Men (Above 25 Years), Factor Q2 (Self-Reliance) in the subgroups of DIET Women (Below 25 Years), DIET Women (Above 25 Years), TTI Men, Women Global and TTI Global and Factor Q4 (Tension) in the subgroups of DIET Men (below 25 Years), DIET Women (Above 25 Years), TTI Women, Men Global, Women Global, DIET Global, TTI Global and Sample.

**Relationship of Performance Competency with Personality Factors (16 P.F)**

Performance Competency have low positive relationship with Personality Factor of A (Warmth) in the subgroup of DIET Women (Above 25 Years) at 0.05 level of significance, Factor C (Emotional Stability) in the subgroup of TTI Women at 0.001 level of significance, Factor E (Dominance) in the subgroups of DIET Men (Above 25 Years), DIET Men (Below 25 Years), DIET Women (Above 25 Years) and TTI Women at 0.001 level of significance, Factor F (Liveliness) in the subgroups of TTI Men, TTI Women and TTI Global at 0.01 level of significance, Factor G (Rule-Consciousness) in the subgroups of TTI Women and TTI Global at 0.001 level of significance and in the subgroups of DIET Men (Above 25 Years), DIET Men (Below 25 Years), DIET Women (Above 25 Years) and Women Global at 0.01 level of significance, Factor H (Social Boldness) in the subgroup of TTI Women at 0.01 level of significance, Factor L (Vigilance) in the subgroups of TTI Women and TTI Global at 0.001 level of significance, in the subgroup of TTI Men at 0.01 level of significance and in the subgroups of DIET Men (Above 25 Years), DIET Men (Below 25 Years), TTI Men, TTI Global and Sample at 0.05 level of significance, Factor N (Privateness) in the subgroups of TTI Women and TTI Global at 0.01 level of
significance, Factor O (Apprehension) in the subgroups of TTI Men, TTI Women, Women Global, TTI Global and Sample at 0.001 level of significance, Factor Q2 (Self-Reliance) in the subgroups of TTI Men, TTI Women, Women Global, TTI Global and Sample at 0.001 level of significance and in the subgroup of DIET Women (Above 25 Years) at 0.01 level of significance, Factor Q3 (Perfectionism) in the subgroup of DIET Women (Below 25 Years) at 0.05 level of significance, Factor Q4 (Tension) in the subgroups of TTI Women, Women Global and TTI Global, in the subgroup of DIET Women (Below 25 Years) at 0.01 level of significance and DIET Women (Above 25 Years) at 0.05 level of significance.

Performance Competency has negligible positive relationship with Personality Factors in the other subgroups.

**Relationship of Attitude towards Teaching Science with Personality Factors (16 P.F)**

Attitude towards Teaching Science has substantial positive relationship with Personality Factor of E (Dominance) in the subgroup of DIET Women (Below 25 Years) at 0.001 level of significance.

Attitude towards Teaching Science has low positive relationship with Personality Factor of A (Warmth) in the subgroups of DIET Men (Below 25 Years) and DIET Women (Above 25 Years) at 0.05 level of significance, Personality Factor B (Reasoning) in the subgroups of TTI Men and Men Global at 0.001 level of significance and in the subgroups of DIET Men (Above 25 Years) and DIET Women (Below 25 Years) at 0.01 level of significance, Personality Factor C (Emotional Stability) in the subgroup of DIET Men (Above 25 Years) and TTI Men at 0.05 level of significance, Personality Factor E (Dominance) in the subgroups of DIET Women (Above 25 Years), Women Global and DIET Global at 0.001 level of significance and in the subgroup of DIET Men (Below 25 Years) and TTI Women at 0.01 level of significance, Personality Factor F (Liveliness) in the subgroups of DIET Men (Below 25 Years) and Men Global at 0.001 level of significance, in the subgroups of TTI Men and TTI Women at 0.01 level of significance and in the subgroups of DIET Women (Above 25 Years) at 0.05 level of significance, Personality Factor G (Rule-Consciousness) in the subgroup of DIET Women (Below 25 Years) at 0.001 level of significance and in the subgroup of DIET Men (Above 25 Years) and TTI Women at 0.01 level of significance, Personality Factor H (Social Boldness) in the subgroups of Men Global and TTI Global at 0.001 level of significance.
significance and in the subgroups of DIET Men (Below 25 Years), TTI Men and TTI Women, Personality Factor I (Sensitivity) in the subgroups of DIET Men (Above 25 Years) and DIET Men (Below 25 Years) at 0.05 level of significance, Personality Factor L (Vigilance) in the subgroups of DIET Men (Above 25 Years), TTI Men, TTI Women, Women Global, Men Global, TTI Global and Sample at 0.001 level of significance, in the subgroup of DIET Men (Below 25 Years) and in the subgroup of DIET Women (Below 25 Years at 0.05 level of significance, Personality Factor N (Privateness) in the subgroups of TTI Men at 0.001 level of significance, in the subgroups of DIET Women (Below 25 Years) and TTI Global at 0.01 level of significance, Personality Factor O (Apprehension) in the subgroups of DIET Men (Below 25 Years), TTI Men, Men Global, DIET Global, TTI Global and Sample at 0.001 level of significance, in the subgroups of DIET Women (Above 25 Years) at 0.01 level of significance and in the subgroups of DIET Men (Above 25 Years) at 0.05 level of significance, Personality Factor Q1 (Openness to Change) in the subgroups of DIET Men (Above 25 Years) at 0.001 level of significance, in the subgroups of DIET Men (Below 25 Years) and Men Global at 0.01 level of significance, Personality Factor Q2 (Self-Reliance) in the subgroups of TTI Men, TTI Women, TTI Global and in the subgroup of subgroup DIET Women (Above 25 Years) at 0.01 level of significance and in the subgroup of subgroup of DIET Men (Above 25 Years) at 0.05 level of significance, Personality Factor Q3 (Perfectionism) in the subgroup of TTI Men at 0.001 level of significance, Personality Factor Q4 (Tension) in the subgroups of TTI Women, Women Global and TTI Global at 0.001 level of significance, in the subgroups of DIET Men (Below 25 Years) and DIET Women (Below 25 Years) at 0.01 level of significance and in the subgroups of DIET Men (Above 25 Years) and DIET Women (Above 25 Years) at 0.05 level of significance.

Attitude towards Teaching Science has negligible positive relationship with Personality Factors in the other subgroups.
5.7.3 MULTIPLE REGRESSIONS

Multiple Regressions for Knowledge Competency of the student teachers with their Performance Competency, Consequence Competency and Attitude towards Teaching Science

Multiple regressions tell the extent to which Knowledge Competency of the student teachers are determined by the combined action of variables Performance Competency, Consequence Competency and Attitude towards Teaching Science in the present situation. The following multiple regression equations explain the size of Knowledge Competency with the sizes of the effective predictors Performance Competency, Consequence Competency and Attitude towards Teaching Science.

Sample

Knowledge Competency of the student teachers in sample is predicted by using their Performance Competency, Consequence Competency and Attitude towards Teaching Science with the help of following regression analysis.

\[
\text{Multiple R} = 0.74 \\
\text{R Square} = 0.54 \\
\text{KC} = 15.84 + 0.79 \times (\text{PC}) - 0.001 \times (\text{ATS}) - 0.0001 \times (\text{CC})
\]

Note: K.C- Knowledge Competency, P.C- Performance Competency, ATS - Attitude towards Teaching Science, C.C- Consequence Competency

The value of Multiple R indicates that Knowledge Competency of the student teachers in sample is highly related with their Performance Competency, Consequence Competency and Attitude towards Teaching Science.

Multiple Regressions for Performance Competency of the student teachers with their Knowledge Competency and Attitude towards Teaching Science

Multiple regressions tell the extent to which Performance Competency of the student teachers are determined by the combined action of variables Knowledge Competency and Attitude towards Teaching Science in the present situation. The following multiple regression equations explain the size of Performance Competency with the sizes of the effective predictors Knowledge Competency and Attitude towards Science Teaching.
SAMPLE

Performance Competency of the student teachers in Sample is predicted by using their Knowledge Competency and Attitude towards Teaching Science with the help of following regression analysis.

Multiple R = 0.72
R Square = 0.52
PC= 32.68 + 0.41 (KC) + 0.05 (ATS)

Note: K.C- Knowledge Competency  P.C- Performance Competency
ATS - Attitude towards Teaching Science

The value of Multiple R indicates that Performance Competency of the student teachers in sample is highly related with their Knowledge Competency and Attitude towards Teaching Science.

Multiple Regressions for Consequence Competency of the student teachers with their Knowledge Competency, Performance Competency and Attitude towards Teaching Science

Multiple regressions tell the extent to which Consequence Competency (C.C) of the student teachers are determined by the combined action of variables Knowledge Competency, Performance Competency and Attitude towards Teaching Science in the present situation. The following multiple regression equations explain the size of Consequence Competency with the sizes of the effective predictors Knowledge Competency, Performance Competency and Attitude towards Teaching Science.

Multiple R = 0.65
R Square = 0.43
CC= 21.65 + 0.35 (KC) + 0.09 (PC) + 0.05 (ATT)

Note: KC- Knowledge Competency  PC- Performance Competency
CC- Consequence Competency, ATT- Attitude towards Teaching Science

The value of Multiple R indicates that Consequence Competency (C.C) of the student teachers in whole sample is highly related with their Knowledge Competency (K.C), Performance Competency (P.C) and Attitude towards Teaching Science (ATT).
**Multiple regressions for Knowledge Competency of the student teachers with their Personality Factors**

Multiple regressions tell the extent to which Knowledge Competency of the student teachers are determined by the combined action of variables of Personality Factors in the present situation. The following multiple regression equations explain the size of Knowledge Competency (KC) with the sizes of the effective predictors Personality.

**Sample**

Knowledge Competency of the student teachers in Sample is predicted by using their personality factors with the help of following regression analysis.

Multiple R = 0.15  
R Square = 0.02

\[
KC = 69.60 + 0.18A - 0.09B + 0.04C - 0.02E + 0.09F - 0.46G + 0.13H + 0.20I + 0.01M + 0.08O - 0.16Q1 - 0.04Q2 - 0.12Q3
\]

Note: KC- Knowledge Competency, A- Warmth, B- Reasoning, C- Emotional Stability, E – Dominance, F- Liveliness, G – Rule-Consciousness, H- Social Boldness, I- Sensitivity, M – Abstractedness, O – Apprehension, Q1- Openness to Change, Q2- Self-Reliance, Q3- Perfectionism,

The value of Multiple R indicates that Knowledge Competency of the student teachers in Sample is negligibly related with their Personality Factors.

**Multiple regressions for Performance Competency of the student teachers with their Personality Factors**

Multiple regressions tell the extent to which Performance Competency (P.C) of the student teachers are determined by the combined action of variables of Personality Factors in the present situation. The following multiple regression equations explain the size of Performance Competency (P.C) with the sizes of the effective predictors Personality.

**Sample**

Performance Competency of the student teachers in Sample is predicted by using their personality factors with the help of following regression analysis.

Multiple R = 0.13  
R Square = 0.02

\[
PC = 68.72 - 0.04E - 0.06F - 0.34G + 0.12O + 0.08Q4
\]

Note: PC- Performance Competency, E – Dominance, F- Liveliness, G – Rule-Consciousness, O – Apprehension, Q4 – Tension
The value of Multiple R indicates that Performance Competency (PC) of the student teachers in Sample is negligibly related with their Personality Factors.

**Multiple regressions for Attitude towards teaching Science of the student teachers with their Personality Factors**

Multiple regressions tell the extent to which Attitude towards Teaching Science of the student teachers are determined by the combined action of variables of Personality Factors in the present situation. The following multiple regression equations explain the size of Attitude towards Science Teaching (ATT) with the sizes of the effective predictors Personality.

**Sample**

Attitude towards Science Teaching of the student teachers in Sample is predicted by using their personality factors with the help of following regression analysis.

\[
\text{Multiple R} = 0.11 \\
\text{R Square} = 0.01 \\
\text{ATS}= 174.88 + 0.47E + 0.02F - 0.44H + 0.08L + 0.02O - 0.20Q2 + 0.07Q4
\]

Note: ATS - Attitude towards Science Teaching, E – Dominance, F- Liveliness, H Social Boldness , L- Vigilance, O- Apprehension, Q2- Self Reliance, Q4 – Tension,

The value of Multiple R indicates that Attitude towards Teaching Science of the student teachers in Sample is negligibly related with their Personality Factors.

**5.7.4 PROFILE OF THE SUBJECTS**

**Knowledge Competency, Performance Competency, Consequence Competency and Attitudes towards teaching science of DIET and TTI Men and Women student teachers**

**Men Vs Women (DIET- below 25 Years):** Both Men and Women student teachers of (DIET- below 25 Years) have higher level in Consequence Competency and Attitude towards Teaching Science. Women student teachers have higher level in Knowledge Competency and Performance Competency. Men student teachers have lower level in Knowledge Competency and Performance Competency. Women (DIET -below 25 Years) student teachers have more subject Knowledge and applied appropriate strategies relating to teaching-learning situations.
**Men Vs Women (DIET - above 25 Years):** Men student teachers (DIET- above 25 Years) have higher level in Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science. Women student teachers (DIET- above 25 Years) have lower level in Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science. Most of the student teachers in Women (DIET - above 25 Years) are married. They pay more attention to their family environment. Hence Men student teachers (DIET- above 25 Years) have more academic knowledge and positive attitude in Science Teaching than Women student teachers (DIET- above 25 Years).

**Men Vs Women (DIET-Global):** Both Men and Women student teachers (DIET-Global) have higher level in Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science. There is no difference between Men and Women (DIET- Global) student teachers in Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science. Hence Men and Women have more subject- specific Knowledge and use good techniques relating to teaching-learning situations. They also have positive attitude in Teaching Science due to high exposure of the staffs, innovative training, and good infrastructure and conduct a number of workshops, seminars and symposiums in the DIET.

**Men Vs Women (TTI-Global):** Both Men and Women student teachers (TTI-Global) have lower level in Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science. There is no difference between Men and Women (TTI- Global) student teachers in Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science. Hence TTI Men and Women have less subject- specific Knowledge, not use good techniques relating to teaching-learning situations. Most of the TTI institutes have not in qualified staffs and infrastructure.

**DIET Vs TTI (Men):** DIET student teachers (Men) have higher level in Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science. TTI student teachers (Men) have lower level in Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science. It observed that DIET student teachers have more Knowledge Competency, Performance
Competency, Consequence Competency and Attitude towards Teaching Science than TTI student teachers.

**DIET Vs TTI (Women):** DIET student teachers (Women) have higher level in Knowledge Competency, Consequence Competency and Attitude towards Teaching Science. But both DIET and TTI student teachers have lower level in Performance Competency. TTI student teachers have lower level in Knowledge Competency, Consequence Competency and Attitude towards Teaching Science. There is no difference between both DIET and TTI student teachers in Performance Competency. It observed that DIET student teachers have more Knowledge Competency, Consequence Competency and Attitude towards Teaching Science than TTI student teachers.

**Men Vs Women (Global):** Both Men and Women student teachers (Global) have higher value in Consequence Competency and Attitude towards Teaching Science. Men student teachers have higher value in Knowledge Competency. Both Men and Women student teachers have lower value in Performance Competency. Women student teachers have lower value in Knowledge Competency. There is no difference between Men and Women student teachers Performance Competency, Consequence Competency and Attitude towards Teaching Science. It observed that Men student teachers have more Knowledge Competency than Women student teachers.

**DIET Vs TTI (Global):** DIET student teachers (Global) have higher value in Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science. TTI student teachers lower value in Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science. It observed that DIET student teachers have more Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science than TTI student teachers.

**Personal Values - Theoretical, Economical, Religious, Aesthetic, Political and Social Values of DIET and TTI Men and Women student teachers**

**Men Vs Women (DIET- below 25 Years):** Both Men and Women student teachers (DIET- below 25 Years) have higher level in Social Values. Men student teachers have higher level in Theoretical, Religious and Political Values. Women student teachers have higher level Economical and Aesthetic Values. Women student teachers have lower level in Theoretical, Religious and Political Values. Men student teachers have lower level in Economical and
Aesthetic Values. There is no difference between Men and Women student teachers in Social Values only. It observed that Men student teachers have more Theoretical, Religious and Political Values than Women student teachers.

**Men Vs Women (DIET - above 25 Years):** Both Men and Women student teachers (DIET- above 25 Years) have higher level in Theoretical, Political and Social Values. Men have higher level in Aesthetic Values. Both Men and Women student teachers have lower level in Economical and Religious values. Women student teachers have lower level in Aesthetic Values. There is no difference between Men and Women student teachers in Theoretical, Political, Economical, Religious and Social Values. It observed that Men student teachers have more Aesthetic Values than Women student teachers.

**Men Vs Women (DIET-Global):** Both Men and Women (DIET - Global) student teachers has higher level in Theoretical, Religious and Social Values. Men student teachers are higher level in Political Values. Both Men and Women student teachers have lower level in Economical and Aesthetic Values. Women student teachers are lower level in Political Values. There is no difference between Men and Women student teachers in Theoretical, Economical, Religious, Aesthetic and Social Values. It observed that Men student teachers have more Political Values than Women student teachers.

**Men Vs Women (TTI-Global):** Both Men and Women (TTI- Global) student teachers has higher level in Theoretical, Economical, Religious and Political Values. Both Men and Women student teachers have lower level in Aesthetic and Social Values. There is no difference between Men and Women student teachers in all personal values such as Theoretical, Economical, Religious, Aesthetic, Political and Social Values. It observed that both Men and Women student teachers has same level in Theoretical, Economical, Religious, Aesthetic, Political and Social Values.

**DIET Vs TTI (Men):** DIET and TTI student teachers (Men) have higher level in Theoretical, Religious and Political Values. DIET student teachers are higher level in Social Values. TTI student teachers are higher level in Economical Values. Both DIET and TTI student teachers have lower level in Aesthetic Values. DIET student teachers are lower level in Economical Values. TTI student teachers have lower level in Social Values. There is no difference between DIET and TTI student teachers in Theoretical, Religious, Aesthetic and Political Values. It observed that DIET student teachers have more Social
Values than TTI student teachers and TTI student teachers have more Economical Values than DIET student teachers.

**DIET Vs TTI (Women):** DIET and TTI student teachers (Women) have higher level in Theoretical, Aesthetic and Social Values. Both DIET and TTI student teachers have lower value in Economical, Religious and Political Values. There is no difference between DIET and TTI student teachers in Theoretical, Economical, Religious, Aesthetic, Political and Social Values. It observed that both DIET and TTI women student teachers have same level of Theoretical, Economical, Religious, Aesthetic, Political and Social Values.

**Men Vs Women (Global):** Men and Women student teachers (Global) have higher level in Theoretical, Economical, Religious and Social Values. Men student teachers have higher level in Political Values. Women student teachers have higher level Aesthetic Values. Men student teachers have lower level in Aesthetic Values. Women student teachers have lower level in Political Values. There is no difference between Men and Women student teachers in Theoretical, Economical, Religious and Social Values. It observed that Men student teachers have more Political Values than Women (Global) student teachers and Women student teachers have more Aesthetic Values than Men student teachers.

**DIET Vs TTI (Global):** DIET and TTI student teachers (Global) have higher level in Theoretical, Religious and Social Values. TTI student teachers are higher in Economical Values. Both DIET and TTI student teachers have lower in Aesthetic and Political values. DIET student teachers have lower in Economical Values. There is no difference between DIET and TTI student teachers in Theoretical, Religious, Aesthetic, Political and Social Values. It observed that TTI student teachers have more Economical Values than DIET student teachers.

**Personality Factors (16 P.F): DIET and TTI (Men Vs Women student teachers)**

**Men Vs Women (DIET- below 25 Years):** The inferences drawn from the above profile shows that Women student teachers (DIET- Below 25 Years) are out going (A+), tender minded (I+), apprehensive (Q+) and tense (Q4+). Men student teachers (DIET- below 25 Years) are reserved (A-), tough minded (I-), placid (Q-) and relaxed (Q4-). Men and Women student teachers do not differ significantly from each other in factors more intelligent (B+), emotionally stable (C+), humble (E-), sober (F-), expedient (G-), shy (H-), suspicious (L+),
imaginative (M+), shrewd (N+), experimenting (Q1+), self sufficient (Q2+) and undisciplined self conflict (Q3-).

**Men Vs Women (DIET - above 25 Years)**: The inferences drawn from the above profile shows that Women student teachers (DIET- Above 25 Years) are out going (A+), more intelligent (B+), tender minded (I+), apprehensive (Q+) and self sufficient (Q2+). Men student teachers are reserved (A-), less intelligent (B-), tough minded (I-), placid (Q-) and group dependent (Q2-). DIET Men student teachers are happy-go-lucky (F+) and venturesome (H+). Women student teachers are sober (F-) and shy (H-). Men and Women student teachers do not differ significantly from each other in factors affected by feelings (C-), humble (E-), conscientious (G+), suspicious (L+), imaginative (M+), forth right (N-), experimenting (Q1+), undisciplined self conflict (Q3-) and tense (Q4+).

**Men Vs Women (DIET-Global)**: The inferences drawn from the profile that Women (DIET- Global) student teachers are out going (A+), tender minded (I+), apprehensive (Q+) and tense (Q4+). On the contrary DIET Men (Global) student teachers are reserved (A-), tough minded (I-), placid (Q-) and relaxed (Q4-). Men (DIET- Global) are venturesome (H+). But Women student teachers are shy (H-). Men and Women (DIET- Global) student teachers do not differ significantly from each other in factors more intelligent (B+), emotionally stable (C+), humble (E-), sober (F-), expedient (G-), suspicious (L+), imaginative (M+), forth right (N-), experimenting (Q1+), self sufficient (Q2+) and undisciplined self conflict (Q3-).

**Men Vs Women (TTI-Global)**: The inferences drawn from the profile that both Men and Women (TTI- Global) student teachers do not differ significantly from each other in factors out going (A+), more intelligent (B+), emotionally stable (C+), assertive (E+), sober (F-), expedient (G-), shy (H-), tender minded (I+), suspicious (L+), imaginative (M+), forth right (N-), placid (Q-), experimenting (Q1+), self sufficient (Q2+), undisciplined self conflict (Q3-) and tense (Q4+).

**DIET Vs TTI (Men)**: The inferences drawn from the profile that TTI (Men) student teachers are out going (A+), assertive (E+) and tender minded (I+). DIET (Men) student teachers are reserved (A-), humble (E-) and tough minded (I-). DIET and TTI student teachers do not differ significantly from each other in factors more intelligent (B+), emotionally stable (C+), sober (F-), expedient (G-), shy (H-), suspicious (L+), imaginative (M+), forth right (N-), placid (Q-),
experimenting (Q1+), self sufficient (Q2+), undisciplined self conflict (Q3-) and tense (Q4+).

**DIET Vs TTI (Women):** The inferences drawn from the profile that DIET student teachers (Women) are apprehensive (Q+). TTI student teachers (Women) are placid (Q-). DIET and TTI student teachers do not differ significantly from each other in factors: out going (A+), more intelligent (B+), emotionally stable (C+), humble (E-), sober (F-), expedient (G-), shy (H-), suspicious (L+), tender minded (I+), practical (M-), forth right (N-), experimenting (Q1+), self sufficient (Q2+), undisciplined self conflict (Q3-) and tense (Q4+).

**Men Vs Women (Global):** The inferences drawn from the profile that Men student teachers (Global) are Venturesome (H+) and tough minded (I-). Women student teachers (Global) are shy (H-) and tender minded (I+). Men and Women student teachers do not differ significantly from each other in factors: out going (A+), more intelligent (B+), emotionally stable (C+), humble (E-), sober (F-), expedient (G-), suspicious (L+), imaginative (M+), shrewd (N+), apprehensive (Q+), experimenting (Q1+), self sufficient (Q2+), undisciplined self conflict (Q3-) and tense (Q4+).

**DIET Vs TTI (Global):** The inferences drawn from the profile that TTI student teachers (Global) are assertive (E+) and conscientious (G+). DIET student teachers (Global) are humble (E-) and expedient (G-). DIET and TTI student teachers do not differ significantly from each other in factors: out going (A+), more intelligent (B+), affected by feelings (C-), sober (F-), shy (H-), tender minded (I+), suspicious (L+), imaginative (M+), forth right (N-), apprehensive (Q+), experimenting (Q1+), self sufficient (Q2+), undisciplined self conflict (Q3-) and tense (Q4+).

**5.7.5 DISCUSSION**

The investigator draws the following inferences based on his study:

Student teachers ([DIET- below 25 Years]) have better performance in Knowledge Competency, Performance Competency, Consequence Competency and Attitude towards Teaching Science than Student teachers ([DIET- above 25 Years]). This is due to good academic record, involvement in teaching and learning. The Student teachers ([DIET- above 25 Years]) are only interested for completing the course and not having involvement in learning, since they already studied their Diploma in Teacher education course in the unrecognized institutes in Tamil Nadu and discontinued their studies due to
lack of infrastructure, staff, etc. The investigator observed that the DIETs have more in infrastructure facilities and sufficient experience teaching staffs, which make the student teachers to have more competencies in teaching than TTIs student teachers. Since the TTIs are self-financing, inadequate infrastructure facilities and lack of qualified teaching staffs. As regards the personal values, DIET and TTI student teachers have higher level in Theoretical, Religious and Social Values. TTI student teachers have more Economical Values than DIET student teachers. Both DIET and TTI student teachers have lower in Aesthetic and Political values. As regards the Personality factors, Men student teachers are Venturesome and tough minded. Women student teachers are shy and tender minded. Men and Women student teachers do not differ significantly from each other in outgoing, more intelligent, emotionally stable, humble, sober, expedient, suspicious, imaginative, shrewd, apprehensive, experimenting, self-sufficient, undisciplined self conflict and tense. TTI student teachers are assertive and conscientious. DIET student teachers are humble and expedient.

5.80 LIMITATION OF THE STUDY

The study comprises men and women student teachers studying in District Institute of Education and Training (DIET) and Teacher Training Institute (TTI) of 20 districts in Tamil Nadu. Out of 29 DIETs in Tamil Nadu, the investigator chooses only 20 DIETs. Out of 239 Teacher Training Institutes in Tamil Nadu, the investigator chooses only 35 Institutes. The investigator chooses only 800 student teachers against a huge population for his study. As the investigator is working as lecturer in District Institute of Education and Training and also a state resource person for inservice teacher education the sample of his study was confined himself mainly within Tamil Nadu only.

5.90 SCOPE OF THE FURTHER STUDY

Every research project opens new vistas for further research studies. The investigator has in this study, identified Knowledge Competency, Performance Competency, Consequence Competency and Attitudes towards teaching science as criteria and Personal Values and Personality Factors as correlates and made this study at student teachers of secondary grade level. The same study can be undertaken at College of Education level or District Institute of Education and Training) and Teacher Training Institute at the Zonal and at the national level.