INFLUENCE OF SELECT PSYCHOLOGICAL VARIABLES ON TEACHING STYLES OF SECONDARY SCHOOL TEACHERS OF KERALA

Thesis

Submitted for the Degree of

DOCTOR OF PHILOSOPHY OF EDUCATION

By

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2015

Certificate

This is to certify that the thesis entitled **"INFLUENCE OF SELECT PSYCHOLOGICAL VARIABLES ON TEACHING STYLES OF SECONDARY SCHOOL TEACHERS OF KERALA"** is an authentic record of research work carried out by **Haskar Babu U.,** for the degree of Doctor of Philosophy in Education of University of Calicut, under my supervision and guidance and that no part thereof has been presented before for any other Degree, Diploma or Associateship in any other University.

Calicut University
. .2015

Dr. ABDUL GAFOOR K.
(Supervising teacher)

DECLARATION

I, Haskar Babu U, do hereby declare that this thesis, entitled **"INFLUENCE OF SELECT PSYCHOLOGICAL VARIABLES ON TEACHING STYLES OF SECONDARY SCHOOL TEACHERS OF KERALA"** is a genuine record of research work done by me under the supervision of Dr.K.Abdul Gafoor, Associate Professor, Department of Education, University of Calicut, and that no part of the thesis has been presented earlier for the award of any other Degree, Diploma or Associateship in any other university.

Calicut University **HASKAR BABU U.**

ACKNOWLEDGEMENT

*At the very outset, I bow my head down with gratitude to **God, the Almighty,** who guided, strengthened and inspired me throughout the process of the research. Without **His** abundant blessings this work would not have been finished. Then, I am indebted to my loving parents for their inspiration, encouragement, moral support and prayer to **the Almighty** for my well-being.*

"A Teacher is a pious gift of God whose precious guidance enables one to select the right path." It is my proud privilege to express my heartfelt gratitude to my learned supervisor Dr. K. Abdul Gafoor, Head and Associate Professor, Department of Education, University of Calicut, Kerala, for his cordial association, erudite guidance, and remarkable suggestions during the course of my research work. His dedicated supervision, critical appraisals and valuable cooperation not only facilitated my work but also enriched it. Without his help I would not be able to submit my thesis. I extend my sincere gratitude to Mumtaz teacher for her encouragement and academic support during my research work. I express my affection towards Nuween and Ishaan.

*I profusely express my sincere thanks to Dr. Sasidharan**,** Associate Professor, Department of Psychology, University of Calicut, for providing me the inventory for measuring Big Five Personality Traits of secondary school teachers.*

It is my delightful duty to express my profound personnel regard and to express my grateful thanks to all faculty members of Department of Education, Dr.V.Sumangala, Prof. Ayishabi, Dr.Usha, Dr.Aruna, Dr.Meera, Dr Naseema, Dr.Musthafa, Dr.Hameed, Dr.Baiju.K.Nath, and Dr Vasumathi University of Calicut, for their timely help during research work. I express my

sincere gratitude to Miss Sajna, and all other non teaching staffs in the Department of Education.

I extent my sincere thanks to Prof. Dr. Balasuramanian for his valuable suggestions during my PQE viva.

I extend my deepest thanks to all research scholars, specifically to Mini teacher, who helped and supported me very much during the last phase of the thesis work. Also, thanks to Sajla, Abida, Muhammed, Nazim, and many more colleagues. I am immensely thankful to all my friends who encouraged me academically as well as morally to accomplish my research work.

I wish to express my gratitude to all head masters, principals, and teachers of those schools where the data were collected.

I also wish to thanks the library staff of CHMK Library, and Department Library in University of Calicut, for giving me ready access to required material.

With all tenderness, I thank my wife Mrs. Faiza, for being there by my side throughout, and made my hands freer to work hard for this venture. It was a blessing, that my son Ajaz Rabeeh who has been growing along with this. Also express sincere thanks to my brother-in-law, Mr. Shakir, for giving necessary arrangements during the time of data collection.

I express my sincere gratitude to Baluvettan and all other staff of the Bina Photostat and Binding Center.

I am highly thankful to those who helped me directly or indirectly during the course of this research. Lastly, I express my heartfelt thanks to all those who have helped me, supported me, and prayed for me for the successful completion of the research work.

Haskar Babu. U

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A UNESCO report on quality of teaching and quality of education in schools emphatically states that several decades of pedagogical research have clearly show what teachers do in classrooms is undoubtedly the key educational determinant in student learning and achievement. It goes without saying that not all teaching practices are equal in this respect (Gauthier, Dembélé, Bossonnette, & Richard, 2004).Teaching is a complex social activity that requires physical and emotional behaviours which exists in the context of social interaction. Teachers have long lasting powerful influence on students. They directly affect how students learn, what they learn, how much they learn, and the way they interact with one another, and the world around them. Teachers foster students with regard to school achievement, positive attitude towards school, interest in learning and other desirable outcomes.

Teaching is a process which facilitates learning. Teaching is a performing art and the teaching process depicts the general pattern of classroom behaviour. The act of teaching leads to reciprocal contacts between teacher and pupil and the interchange itself. Like other performers, teachers must convey a strong sense of presence of highly focused energy (Lowman,1984).The effective teaching is essentially concerned with how well to bring about desired pupil learning by some educational activity. Teaching styles are very important for effective teaching and learning (Sternberg & Grigorenko, 1995, 2001) and a profile of styles make teaching more effective.

Style is the difference in personality traits. The unique aspect of humanness of a person is considered as his/her style. Style is basically stable, but behaviours deriving from it may change as interactions among cognitive, conceptual and affective patterns which are the roots of behaviour are liable to change. Style is not absolute and it alone does not determine competence.

Teachers are not a uniform group of individuals; each develops a unique pedagogical style. Guild *et al.* (1985) developed four categories of style difference. Firstly, style is concerned with cognition in which people gain and perceive knowledge differently. Secondly, style is concerned with conceptualization in which people form ideas and think differently. Thirdly, style is concerned with affect in which people feel and form values differently. Lastly, style is concerned with behaviour in which people act differently.

A keystone in the theoretical foundations of any discussion on learning and teaching styles is the acceptance that there is no single correct way to learn or to teach. Individual styles influence how an individual learns, how individual teachers teach and how the two interact with each other (Dixon & Woolhouse, 1996).

Teaching style is a multidimensional construct that bases on the way how teachers act in classrooms (Grasha, 2002). Grasha (1994) explained three factors associated with the selection of a teaching style. They are capability of students to handle course demands, need for teacher to directly control classroom tasks, and willingness of teacher to build and maintain relationships. Conversely, teaching styles influence the character of the learners, learning environment, and overall execution of learning in a classroom.

Teaching style by definition is the approach teachers put into practice to carry out teaching and learning activities. Teaching style is a hypothetical construct used to characterize the teacher-student interaction (Fischer & Fischer, 1979), and a useful tool to understand and explain important aspects of teaching learning process, which have been interpreted and classified based on several criteria. An instructor's beliefs regarding teaching and learning, how these beliefs are translated into teaching practice within a learning

environment and, how instructors present information, interact with students, manage and supervise learning tasks, and mentor students (Grasha, 1994) are all components of teaching style. Conti (1990) concludes that one's teaching style is consistent, overall traits and qualities. The classifications, taxonomies and categories and traits discussed in the literature are means of labeling and identifying those strengths and characteristics. This study probes factors influencing teaching styles.

Need and Significance

Every teacher develops a particular way of going about the complex task of teaching. The way of planning the teaching manual, introducing a topic, mode of classroom communication, presentation of content, raising questions, mode of evaluation and providing reinforcements, all these and hundreds of other behaviours together make up the classification of a teacher by researchers, colleagues and students.

Style is a "multidimensional construct" and teaching styles involve elements of "general modes of classroom behaviour, characteristics associated with an instructor, teaching methods used, behaviours common to all faculty, personality traits, archetypal forms, and metaphors for teaching" (Grasha,1996).Teaching styles are supposed to define the behaviours that teachers exhibit as they interact with learners (Fischer & Fischer, 1979). The factors such as gender, educational level, number of years of teaching experience, type of school management, subject area taught etc. are the important demographic variables which may influence teaching styles. A good part of this study is to examine whether such factors impact teaching styles.

According to Trowbridge and Bybee (1966) the assumption underlying teaching style is that it is the most effective and efficient means of presenting

the material as long as the style is appropriate for the subject and the students. Teaching style develops understanding, skills and values relative to the subject. In other words, teaching style describes the manner in which a teacher manages instruction and the classroom environment.

A multiple set of embedded factors play a vital role in defining the teacher's interest and the most important factor is concerned with professional growth and preparation in the field. An intellectual style is an umbrella term covering other constructs in style literature including learning style, thinking style and teaching style. Considering style as the difference in personality traits and since personality traits of secondary school teachers are bound to influence their teaching, influence of styles of learning and thinking with teaching style have to be analysed. Studying teaching styles against learning and thinking styles and personality traits is theoretically significant, because all these terms are interdependent and come under the purview of intellectual styles, the preferred way of processing information. Personality traits found to be important aspect of effective teaching; they are non-academic in nature and include assertiveness, willingness to take risks, independence, self-confidence, creative, warm and loving (Baldwin & Sabry, 2003). The student learning outcomes can be enhanced by matching teaching styles to learning styles. Even though the learning styles of students have been examined in several studies, the studies concerned with the learning style of instructors are limited.

Researchers have identified areas influencing teachers' teaching style, such as the nature of the subject area (Evans, 2004); pre-service teacher preparation and schooling socialization (Evans, 2004); the impact of curriculum initiatives (Hargreaves, 2003); job satisfaction (Opdenakker & Van Damme, 2006); socio-cultural backgrounds and attitudes (Villegas & Lucas, 2002). Other researchers have examined the relationship between

teaching style and student achievement of learning outcomes (Adey, Fairbrother, William, Johnson & Jones, 1999; Aitkin & Zuzovsky, 1994; Conti, 1985).

Schools as social institutions consists of the pupils belonging from different familial, cognitive, emotional and socio-economic backgrounds, holds complex heterogeneity of classroom, which is to be considered as a style construct of individual difference in connection with learning, teaching and thinking.

Even though teaching style, learning style and thinking style are the different style constructs in the style literature, the studies regarding the mutual influence of these factors are very limited especially in Indian context. Each teaching style has some specific teaching and classroom behaviours which demarcate one from another. The studies related with the match / mismatch of teachers' teaching style and learning style of students either foster or reduce the academic performance of students.

Knowles (1970) suggests that the teacher is the single most important variable influencing the dynamics of the learning situation. The measurement and understanding of a teacher not only provides an external measure of classroom effectiveness, but also serves as the internal assessment of values, beliefs and above all, orientation of educational philosophy. It is important for individuals to understand that a preference or tendency toward one style or another is neither good nor bad. It is an assessment of what it is.

Style refers to a person's pervasive qualities that persist even though conditions may change (Conti & Wellborn, 1986), and most traits associated with style are not congenital but rather they develop over time which can change slowly, and reflect other characteristics of the person (Seevers & Clark, 1993).Teachers will have their own interpretations to learning, and

may or may not design their teaching interactions mainly from the perspective of their own style.

Teachers are not a uniform group of individuals; each develops a unique pedagogical style. Teaching styles have to do with the 'how' and 'why' of delivering content, not the 'what' (Rink, 2002). Interaction between teacher and learners in a given teaching style results in 'a particular teaching behavior, particular learning behavior, and particular sets of objectives' (Mosston & Ashworth, 2002, p. 13) during a lesson. The amount of time that the teacher and learners are engaged in a teaching style or in a learning process, can vary.

This study is an investigation of the influence of learning style, thinking styles and personality traits on teaching styles of secondary school teachers. One special feature of this study is that it is considering three style constructs simultaneously. Although these variables have been examined in previous studies, they have not been explored simultaneously in one study. A literature search failed to show any systematic attempt to examine all these variables in a single study. These style constructs are usually investigated pair by pair in separate studies. All these variables are interdependent and hope that considering these constructs together will help to bring positive result in the teaching learning process. The demographic variables such as teaching experience, gender, educational qualifications, type of school management, and teaching subject have to be considered.

Therefore, it is imperative to carry out research to help teachers' awareness of their own styles and realize the importance and implications of teaching and learning styles for classroom practice. Furthermore, the outcome of the study will assist the teachers in planning teaching methodologies, approaches, and strategies that cater to the individual learning styles of the students. As a result, it will facilitate the teachers to mould their teaching

styles, practice alternatives, and transform their strategies to meet varied learning situations.

The selection of three variables from the style literature is meant for the validation of style constructs, to examine any significant difference one another among such constructs or to find out whether these variables are inter related and interdependent. The study also has an assumption that if these variables have the same function, what the need is of these different terms in style literature.

The four style constructs in this study represent three broad meanings of psychological styles in the literature. Teaching style stands for performance style with activity orientation, perceptual learning style stands for sensory preferences, thinking style stands for the information processed through cognition, and the personality traits as the core style.

Secondly, factors influencing teaching style are not at all conforming. Whether demographic variables influence teaching style is to be explored. Different theorists have expressed different views on it. Influence of some demographic variables such as gender, teaching subject and teaching experience on teaching styles have been explored in Western countries. This study is an attempt to check whether such factors influence teaching styles in the Indian context.

Teaching and learning styles are the two sides of the same coin. “Teaching and learning styles are the two sides of dynamic continuum, because they are always changing” (Proidera & Esendall,2008).However, unlike learning style, teaching style has not received due consideration in educational psychology.

Teaching styles were studied in relation to varied factors like gender, students’ Learning Style and thinking styles, long term classroom outcomes

like creativity and classroom discipline, and teachers' philosophy. However, studies on teaching styles are too few in Indian context. The reviewed studies revealed why teaching styles are important in classrooms (Louange, 2007).However, what styles teachers have is not yet settled an issue. Further, how can the teaching styles and learning style be optimally matched is yet to gain required explanation (Dasari, 2006). For this purpose, factors influencing teaching styles are not satisfactorily explored. Additionally, thinking styles are not well studied in India, especially so among teachers. Thinking styles are to be studied especially because teachers' own thinking styles are bound to affect how they relate to others. Thinking styles impacts teaching-learning scenario (Betoret, 2007), both as a factor that decides quality of educational process and as an outcome of education. Reviewed studies have shown that thinking styles are known to influence educational outcomes in adults as well. One explanation of how thinking styles affect educational outcomes (Garcia & Hughes, 2000) is that thinking styles are associated with learning approaches (Zhang, 2004). Matching thinking styles of teachers to that of students, which is an often quoted remedy for many maladies of classrooms calls for variety in teaching styles which in turn calls for better understanding of dynamics behind teaching styles.

Learning style preferences are studied among a variety of adult learners from varying professional education fields, including education, though majority of such studies are from technical-scientific subjects. Academic subject is a significant characteristic that influences learning style. Studies show that cognitive styles and preferences are mediated by gender and ethnicity. Learning styles is presumed to affect student outcomes. However, consistency of learning style in itself is questioned. Match between learning style and teaching style is desirable, but found not easily achievable due to lack of understanding of varying style conflicts in classrooms. Personality traits, especially big-five factors are bound to contribute to

learning, thinking (Zhang, 2003) and teaching preferences. However, studies of personality factors in relation to teaching-learning situation especially in India are few.

Statement of the Problem

"Influence of Select Psychological Variables on Teaching Styles of Secondary School Teachers of Kerala."

This study tests the influence of select psychological variables viz., Learning Styles, Thinking Styles and Big Five personality traits on Teaching Styles of Secondary School Teachers of Kerala. It studies whether disposition of teachers to adopt particular styles of teaching varies by teachers' learning styles, their thinking styles, and personality traits. Besides, the classificatory variables namely, gender, teaching experience, teaching subject, educational qualifications and type of school management are also considered for the study.

Definition of Key Terms

The key terms used in the statement of the problem are defined in the following part.

1. Influence

The general meaning of *Influence* is the capacity to have an effect on the character, development, or behaviour of someone or something, or the effect itself. In this study it is the capacity of select demographic and psychological variables to have an effect on the teaching styles of secondary school teachers. Influence is studied in terms of significant mean difference in teaching styles between the two or three categories of teachers based on select demographic and psychological variables, using t- test or ANOVA. Influence of psychological variables in this study denotes significant mean difference in

teaching styles between the low and high groups formed on psychological variables with first and third quartiles as respective cut points.

2. Teaching Style

Teaching style represents a pattern of needs, beliefs and behaviours displayed by teachers in their classrooms (Grasha, 1996).Styles of faculty were multidimensional and affected how they presented information, interact with students, managed classroom tasks, supervised course work, socialized students to the field, and mentored students (Grasha).Five types of teaching styles (Expert, Formal Authority, Personal, Facilitator and Delegator) are identified for this study.

3. Select Psychological Variables

The select psychological variables used in the study are Learning Styles, Thinking Styles and Big Five personality traits.

Learning style

Learning style is a cognitive, affective, and psychological trait that is relatively a stable indicator of how learners perceive, interact with, and respond to the learning environment (Keefe, 1979).

Four types of Learning Styles are selected for the study namely, Visual, Visual Letter, Auditory and Kinesthetic.

Thinking style

The term thinking style is defined as one's habitual patterns or preferred ways of thinking while doing something (Sternberg, 1993, 1997).Thirteen types under five dimensions viz., Legislative, Executive, Judicial, Monarchic, Hierarchic, Oligarchic, Anarchic, Global, Local, External, Internal, Conservative and Liberal are selected for study.

Big Five Personality Traits

This is a composite measure of teachers' big five personality traits provided by a personality inventory which includes five traits (sub scales): (1) Extraversion, (2) Neuroticism, (3) Openness to experience, (4) Agreeableness, and (5) conscientiousness.

4. Secondary School Teachers

Secondary School Teachers refer to teachers teaching in standards VIII, IX and X in any school recognized by the Government of Kerala State.

Research Questions

What are the teaching styles among secondary school teachers in Kerala? Do teaching styles vary by factors like gender, subject of teaching, educational qualification, teaching experience, and type of school? Do learning styles, thinking styles and personality traits significantly influence teaching styles of secondary school teachers of Kerala? Which learning styles, thinking style, and personality traits favor relatively more student-centered teaching styles than the teacher-centered teaching styles?

Objectives of the Study

This study tests the influence of Learning Styles, Thinking Styles and Big Five Personality Traits on Teaching Styles of Secondary School Teachers of Kerala. To accomplish this major purpose, the study has set the following objectives.

1. To develop and validate a Teaching Style Inventory for measuring the extent of Expert, Formal Authority, Personal, Facilitator and Delegator styles of teaching among Secondary School Teachers of Kerala.

2. To find out the extent of preference for teaching styles viz., Expert Formal Authority, Personal, Facilitator and Delegator, of Secondary School Teachers of Kerala.

3. To test whether preference for teaching styles among Secondary School Teachers of Kerala differ by groups based on

    a. Gender
    b. Teaching Experience
    c. Teaching Subject
    d. Educational Qualification
    e. Type of Management.

4. To test whether Learning Style preferences [Visual, Visual Letter, Auditory and Kinesthetic] of Secondary School Teachers influence their Teaching Styles viz.,

    a. Expert
    b. Formal Authority
    c. Personal
    d. Facilitator
    e. Delegator.

5. To test whether Thinking Style preferences [Legislative, Executive, Judicial, Monarchic, Hierarchic, Oligarchic, Anarchic, Global, Local, External, Internal, Conservative and Liberal] of Secondary School Teachers influence their Teaching Styles viz.,

    a. Expert
    b. Formal Authority
    c. Personal

d. Facilitator
e. Delegator.

6. To test whether Big Five Personality Traits [Extraversion, Neuroticism, and Openness to Experience, Agreeableness and Conscientiousness] of Secondary School Teachers influence their Teaching Styles viz.,

a. Expert
b. Formal Authority
c. Personal
d. Facilitator
e. Delegator.

Hypotheses

The following hypotheses were framed and tested for the present study.

1) There is no significant gender- based difference in the disposition of Secondary School Teachers to:

i. Expert Teaching Style
ii. Formal Authority Teaching Style
iii. Personal Teaching Style
iv. Facilitator Teaching Style
v. Delegator Teaching Style.

2) There is no significant difference by educational qualification in the disposition of Secondary School Teachers to:

i. Expert Teaching Style
ii. Formal Authority Teaching Style
iii. Personal Teaching Style

iv. Facilitator Teaching Style

v. Delegator Teaching Style.

3) There is no significant difference by teaching-subject in the disposition of Secondary School Teachers to:

i. Expert Teaching Style

ii. Formal Authority Teaching Style

iii. Personal Teaching Style

iv. Facilitator Teaching Style

v. Delegator Teaching Style.

4) There is no significant difference by type of management of school in the disposition of Secondary School Teachers to:

i. Expert Teaching Style

ii. Formal Authority Teaching Style

iii. Personal Teaching Style

iv. Facilitator Teaching Style

v. Delegator Teaching Style.

5) There is no significant difference by teaching experience in the disposition of Secondary School Teachers to:

i. Expert Teaching Style

ii. Formal Authority Teaching Style

iii. Personal Teaching Style

iv. Facilitator Teaching Style

v. Delegator Teaching Style.

6)(i) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Visual Learning.

6)(ii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Visual Letter Learning

6)(iii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Auditory Learning.

6)(iv) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style

b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Kinesthetic Learning.

7)(i) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Legislative Thinking Style.

7) (ii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Executive Thinking Style.

7) (iii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style

c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Judicial Thinking Style.

7) (iv) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Monarchic Thinking Style.

7) (v) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Hierarchic Thinking Style.

7) (vi) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style

d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Oligarchic Thinking Style.

7) (vii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

by their preference for Anarchic Thinking Style.

7) (viii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

by their preference for Global Thinking Style.

7) (ix) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and

e. Delegator Teaching Style

by their preference for Local Thinking Style.

7) (x) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for External Thinking Style.

7) (xi) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Internal Thinking Style.

7) (xii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Conservative Thinking Style.

7) (xiii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Liberal Thinking Style.

8) (i) There exists significant difference by *Extraversion* in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

8) (ii) There exists significant difference by *Neuroticism* in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

8) (iii) There exists significant difference by *Openness to Experience* in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

8) (iv) There exists significant difference by *Agreeableness* in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

8) (v) There exists significant difference by *Conscientiousness* in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

Variables

The following were the variables selected for the study.

Independent Variables

The Independent Variables selected for the study were learning style, thinking style and big five personality traits.

Learning Style

(Four types viz., Visual, Visual Letter, Auditory, and Kinesthetic)

Thinking Style

(Thirteen types such as Legislative, Executive, Judicial, Monarchic, Hierarchic, Oligarchic, Anarchic, Global, Local, External, Internal, Conservative and Liberal under five dimensions viz., Functions, Forms, Levels, Scope, and Leanings)

Big five Personality Traits

(Five Traits viz., Extraversion, Neuroticism, Openness to Experience, Agreeableness, and Conscientiousness)

Dependent Variables

The dependent Variables selected for the study was Teaching Styles(Five types viz., Expert, Formal Authority, Personal, Facilitator, and Delegator).

Methodology

The procedure adopted for the study is descriptive survey. Here a representative sample was administered with rigorously developed or chosen data collection instruments to obtain valid and reliable data that were subjected to statistical analysis.

Sample

The study was carried out on a representative sample of 300 secondary school teachers in Kerala state. The sample was obtained using stratified random sampling procedure with the representation given to factors like gender, teaching subject, teaching experience, type of management and educational qualifications.

Tools Used for the Study

The data for the study were collected using the tools as described in the following.

1. Teaching Style Inventory (Gafoor & Babu, 2013)

The Dependent Variable Teaching style (score for each style, not total score) was measured using the inventory developed and standardized by Gafoor & Babu (2013).

2. Thinking Style Inventory (Gafoor & Babu, 2013**)**

The Thinking style (score for each style, not total score) was quantified by using Thinking Style Inventory. The inventory was developed and standardized by Gafoor & Babu (2013).

3. Edmonds Learning Style Identification Exercise (ELSIE) (Reinert,1976)

The Edmonds Learning Style Identification Exercise (ELSIE) is a standardized tool developed by Reinert (1976),used to quantify four learning styles

4. Calicut University Personality Inventory (CUPI) (Sasidharan, 2007)

The Calicut University Personality Inventory (CUPI) was used to quantify personality traits of five dimensions. The CUPI was developed and standardized by Sasidharan (2007).

Statistical Techniques Used for **the Analysis** of **Data**

Following statistical techniques were utilized for processing data in the present study.

Test of significance of difference between means

To compare the extent of teaching styles by levels of different learning styles, thinking styles and personality traits and to study the effect of sex difference and differences in educational qualifications on Dependent Variables, this statistical procedure was used. Besides, the test of significance of difference between means was used to find the group difference; wherever significant F values are obtained.

ANOVA

One way ANOVA was used to find out the effect of teaching experience (four groups) on teaching styles. One way ANOVA was also employed for testing the effects of type of school management (three types) and the effect of teaching subjects (five groups) on teaching styles. Besides, test of significance of difference between means was employed to find the group difference; wherever significant F values are obtained.

Scope of the Study

This study was intended to investigate the influence of four perceptual preference Learning Styles, thirteen Thinking Styles under five dimensions of mental self-government (Sternberg, 1997) and the Big five Personality Traits on five Teaching Styles of Secondary School Teachers of Kerala. Two of these teaching styles each are teacher-centred styles (expert and formal authority styles), student-centred styles (facilitator and delegator styles) and one style (personal style) is in between them. A standardised tool is developed to measure five teaching styles among secondary school teachers. Other appropriate standardised tools thinking style inventory were also developed with teacher population in mind and are used for the data collection. Sample of teachers is drawn from five districts of Kerala, and since teachers from other districts are also working in these districts, the sample drawn is

considered highly representative of the population of secondary teachers in Kerala. Data were analysed with utmost care and precision, ensuring the conditions for valid interpretation and conclusions. Hence the investigator hopes that the study would yield reliable results that can be generalized. The findings of the study may help educationists reform the classroom intervention existed in the process of learning and teaching.

Despite making every attempt to make the study as precise and objective as possible, certain delimitations have to be built into the study.

1. The selection of Independent Variables that affect the Dependent Variable (Teaching Styles) is confined to three major variables only viz., Learning Style, Thinking Style and Big five Personality Traits.
2. Since the administration of inventories used in the study is much time consuming, it was conducted only on a sample of 300 secondary school teachers.
3. Secondary school teachers teaching in southern and central districts of Kerala were not included in the study. The study was conducted on teachers selected from Malappuram, Kozhikode, Kasargod, Palakkad, and Wayanad districts, assuming it to be a representative of secondary school teachers in Kerala.
4. Secondary school teachers working in unrecognized and central schools are not included in the study.
5. Due to the unequal and inadequate number of samples obtained for analysis among different language teachers, the language teachers of Malayalam, English, Hindi, Arabic, Urdu, and Sanskrit were considered as a single unit.
6. Only 33 secondary school teachers were selected from unaided schools.

Limitations of the Study

The major limitation that crept into the study was the failure to get the measures of independent variables in a normal distribution, especially so in visual letter learning, in many thinking styles like executive, monarchic, oligarchic, external, internal, conservative and liberal thinking styles, and personality traits like neuroticism, agreeableness and extraversion. This has limited the scope of studying the influence of learning styles, thinking styles and personality traits in terms of statistical designs with more explanatory power like correlation analysis and multiple regressions analysis to study the influence of these independent variables on teaching styles. The nature of distribution of these variables has made the researcher to turn them into categorical form, with upper and lower groups decided based on the first and third quartiles. This has resulted in not considering the middle groups which are likely to be ambivalent on the given style or trait; and reduced the effective sample size to around half the sample size from which data were obtained. Still, this effective sample size itself is comparatively higher and allows valid interpretations of the results of comparison of means using t-ratio.

CHAPTER II

REVIEW OF RELATED LITERATURE

- *Overview of Development of Style Constructs*
- *Conceptual Overview of Teaching Style*
- *Conceptual Overview of Thinking Style*
- *Conceptual Overview of Learning Style*
- *Conceptual Overview of Big Five Personality Traits*
- *Studies on Teaching Styles and Influences on and of Teaching Styles*
- *Studies on Learning Styles in Adults in Teaching-Learning and Professional Contexts*
- *Studies on Thinking Styles in Adult and Teaching-Learning Contexts*
- *Studies Relating Big Five Personality Traits to Learning, Thinking and Teaching Styles*
- *Conclusion*

The prime aim of this study is to determine the influence of learning style, thinking style and big five personality traits on teaching style of secondary school teachers. To put the research into a background context and to explain its importance, the relevant literature is reviewed in this chapter with respect teaching style, thinking style, learning style and big five personality traits. The reviewed literature is presented under two broad categories, 1. Theoretical Overview of Style Constructs in Teaching, Thinking, and Learning and Big Five Personality Traits, and 2. Previous Studies on Teaching, Thinking, and Learning Styles and Big Five Personality Traits. Together under these two broad categories, this chapter presents, reviewed literature pertaining to the influence of learning style, thinking style and big five personality traits on teaching style under the following sections viz.,

- Overview of Development of Style Constructs
- Conceptual Overview of Teaching Style
- Conceptual Overview of Thinking Style
- Conceptual Overview of Learning Style
- Conceptual Overview of Big Five Personality Traits
- Studies on Teaching Styles and Influences *on* and *of* Teaching Styles
- Studies on Learning Styles in Adults in Teaching-Learning and Professional Contexts
- Studies on Thinking Styles in Adult and Teaching-Learning Contexts
- Studies Relating Big Five Personality Traits to Learning, Thinking and Teaching Styles

Overview of Development of Style Constructs

The notion of style refers to a person's preferred way of using his/her abilities (Sternberg, 1997), and is a key factor in trying to account for the marked individual differences in performance shown by people as they think, learn, teach, or carry out various tasks (Messick, 1984; Riding & Cheema, 1991; Sternberg & Grigorenko, 1997; Tennant, 1988; Witkin, Oltman, Raskin, & Karp, 1971). According to Fischer & Fischer (1979), style is a pervasive quality in the behaviour of an individual, a quality that persists though the content may change. Since the 1950s, psychologists have been investigating the nature of various types of styles, such as cognitive, thinking, teaching and learning styles, and their effects on performance in both academic and non-academic settings (Goldstein & Blackman, 1978; Kogan & Saarni, 1990; Rayner & Riding, 1997; Sternberg & Grigorenko, 1997; Witkin & Goodenough, 1981).

Scholars and educators have been investigating the roles of styles of thinking and learning in human performance for more than half a century. Clearly, until recently the field of styles was characterized more by disorder than order. Initially, scholars do not agree upon the origin of the concept of style in cognitive psychology. Scholars have attributed the origin of this concept in cognitive psychology differently—some to classical Greek literature (Vernon, 1973), some to James's (1890) conception of individual differences, others to Allport's (1937) idea of life style and distinctiveness and still others to Jung's (1923) theory of personality types (Sternberg and Grigorenko, 1997).

Similarly, works on styles have roots in diverse research traditions, most notably, differential psychology, psychoanalytic ego psychology, and the experimental psychology of cognition (Messick, 1994). Within the first few decades of research on styles, especially during the golden age of the

styles movement from the late 1950s to the early 1970s, a diverse and even massive collection of theories and models of styles resulted in various labels with the root word “style” (Messick, 1984; Riding and Cheema, 1991), including cognitive style, defensive style, expressive style, responsive style, teaching style and learning style. As a result, styles are perceived as multidimensional construct.

Different theorists emphasize different dimensions of styles in their conceptualizations. They emphasized on different criterion features in the assessments of styles. In the history of the styles literature, this diversity in theorization and research created lack of convergence which ultimately led to a reduction in the quantity and quality of styles research between the early 1970s and the mid-1980s (Riding & Cheema, 1991).

Many researchers working within the learning or cognitive style research failed to mention the existence of other types of style (Riding & Cheema, 1991).Style research have been equipped with many terms that could be applied in learning situations which covered topics closely related to learning styles, personality types, cognitive styles, thinking styles, teaching styles, leadership styles, intellectual styles and decision-making styles.

Personality types are sets of orientations and attitudes that describe basic individual preferences accompanying a person’s interaction with the environment (Jung, 1923). Cognitive styles represent individual differences in how a person perceives, thinks, solves problems, and learns (Witkin, Moore, Goodenough, & Cox, 1977). Thinking styles refer to ones preferred way of thinking (Sternberg, 1997).A decision-making style is an individual’s characteristic mode of perceiving and responding to decision-making tasks (Harren, 1979). The intellectual style is an umbrella term covering all such terms; cognitive style, personality style, thinking style, and teaching style.

Learningstyle refers to person’s preferred way of processing information (Zhang & Sternberg, 2005).

The term learning stylesrefers to the manner in which individuals perceive and process information in learning situations (Brown, 2000). Learning styles, cognitive styles, thinking styles, teaching styles, decision-making styles, and personality types are often used as synonyms (Sadler-Smith, 2001). Different measures are used to assess the same styles. Also, very similar instruments are used to measure purportedly distinct styles (Messick, 1984).

Recently, a positive resurgence was witnessed of interest in the study of styles in both academic and non-academic settings. This interest is manifested through two types of work. The first type is conceptual integration of previous works on styles. The second type is empirical research aimed at investigating the relationships among the different style labels (Zhang, 2000).

Several writers have provided an account of the origin of style in cognitive psychology. Martinsen (1994) claimed that antecedents of style can be traced back to classical Greek literature. Martinsen referred to James' conception of individual differences contributing to the style construct (James, 1890). Riding referred to the work of Galton (1883), but more significantly pointed to the work of Bartlett (1932), who continued with research on individual differences in cognition. Riding and Cheema (1991) and Grigorenko and Sternberg (1995) agree that Allport (1937), in work which developed the idea of 'life-styles', was probably the first researcher to deliberately use the 'style' construct in association with cognition. For an operational definition of style, Riding and Cheema (1991) considered the description of cognitive style as a person's typical or habitual mode of problem solving, thinking, perceiving and remembering.

Vernon (1963) raised an early critique of cognitive style, tracing its development from work carried out by German 'Gestalt' psychologists. Vernon (1963) generally, was critical of style development in psychology of perception, admitting to a serious problem with the style construct and commented that cognitive style had largely evolved from theories generalized on single experiments and has little empirical evidence.

Different Traditions of Style Research in Psychology

Grigorenko and Sternberg (1995) depicted three distinct traditions of style research in psychology. The first is labeled as the cognition-centred approach, the second the personality-centred approach and the third the activity-centred approach. The first occurred mostly in the beginning of the 1940s, involved the development of 'cognitive styles', which reflected the work of experimental psychologists, investigating in the area of individual differences in cognition and perception. Styles in the cognition-centered tradition most closely resemble abilities. Moreover, like abilities, styles in this tradition are measured by tests of maximal performance with “right” and “wrong” answers.Witkin’s (1962) field-dependence/independence model and Kagan’s (1976) reflectivity-impulsivity model are the two models of these styles.

The personality-centered tradition considers styles as most closely resembled with personality traits. Furthermore, styles in this tradition are measured by tests of typical, rather than maximal performance. The works of Myers and McCaulley (1988) based on the ideas of Jung’s (1923) theory of personality types, Holland’s (1973, 1994) theory of vocational types and Gregorc’s (1979) model of types of styles fall into this tradition.

The activity-centered tradition emphasizes that styles are mediators of activities that arise from both cognition and personality. Similar theories of

deep- and surface-learning approaches proposed by Marton (1976), Biggs (1978), Entwistle (1981), and Schmeck (1983) comes under this tradition. The cognition-centered styles are more closely related to abilities than are styles of the other two approaches; personality-centered styles are more closely related to personality traits than are styles from the other two approaches; and activity-centered styles are more closely related to learning strategies than are styles from the other two approaches (Zhang & Sternberg, 2005)

Styles are the individual differences in approaches to tasks and that can make a difference in the way a person perceives, learns, or thinks. Some scholars limit the definition of styles to those that matter for cognition which was the original intention of the cognitive styles movement, identifying styles of processing information that are consequential for cognition (Gregorc, 1979, 1985;Kagan, Rosman, Day, Albert & Philips, 1964;Kirton, 1976; Kogan, 1973; Marton, 1976)

The styles literature focuses on two specific aspects viz., ability-based and personality-based theories of styles (Sternberg, 1997; Zhang & Sternberg, 2005, 2006) and can be measured by either ability-based or personality-based measures. According to Sternberg (1997), the abilities and attributes measured by maximum-performance tests or by typical-performance tests are styles only if they interact with performance-based outcomes of learning or thinking.

There are many theories of both ability-based styles (Cianciolo & Sternberg, 2004; Sternberg, 2000) and personality-based styles (Sternberg & Zhang, 2001; Zhang & Sternberg, 2006). Gardner (1983) has proposed a well-known theory of multiple intelligences, which posits that people can learn in different ways. Gardner applied this theory to instruction and assessment (1993). Similarly, Gregorc (1985) has proposed a personality based theory of styles that has been widely used for educational and business

purposes, and Renzulli and Smith (1978) have studied different styles of learning.

The ability-based theory and personality-based theory have to make the argument that both kinds of styles can matter for educational interventions. The two theories which draw on are the theory of successful intelligence (Sternberg, 1997, 1999, 2005) and the theory of mental self-government (Sternberg, 1988, 1997).

Styles in Teaching and Learning

From the perspective of ability based styles in teaching and learning, every aspect of teaching and assessment should be balanced in terms of the ability-based styles they require (Sternberg, Grigorenko & Zhang, 2008). Thinking always requires memory and, the knowledge base that is accessed through the use of memory. When students think to learn, they also learn to think. Students who are taught analytically, creatively, and practically perform better on assessments. Relating the teaching to the tri-archic concept of intelligence, Sternberg, Grigorenko and Zhang, explains that teaching analytically means encouraging students to analyze, critique, judge, compare and contrast, evaluate, and assess. For teachers teaching critical thinking typically mean teaching analytical thinking (2008).Teaching creatively means encouraging students to create, invent, discover, imagine, suppose, and predict. According to Sternberg, Grigorenko and Zhang, teaching creatively requires teachers not only to support and encourage creativity, but also to demonstrate it and reward it when it is displayed. According to them, teaching practically means encouraging students to apply, use; put into practice, implement, employ, and render practical what they know. Practical teaching must relate to the real practical needs of the students, not just to what would be practical for other individuals.

The personality-based styles derived from a theory called, the theory of mental self-government (Sternberg, 1988, 1997). Understanding personality-based styles helps teachers differentiate instruction so as to maximize the learning outcomes of all learners (Sternberg, 1997, 2003; Sternberg & Grigorenko, 1997, 2004; Zhang & Sternberg, 2005). Students can apply styles at any level from elementary school (Sternberg & Grigorenko, 1995) through the university level (Cilliers & Sternberg, 2001). A personality-based style of thought is a preference for using abilities, not an ability itself, but rather, how one likes to use one's abilities. Personality-based styles of thought are important in education from several points of view. First, if abilities as we currently measure them account for only small proportions of individual differences in school performance, then we might ask what other kinds of constructs might account for what is not predicted (Gardner, 1993; Sternberg, 1985). Personality-based thinking styles provide one such construct. Sometimes the pattern of personality-based styles that leads to success in a course in a given discipline is not the pattern of personality-based styles that leads to actual success later in a job in that discipline.

The theory of mental self-government (Grigorenko & Sternberg, 1995; Sternberg, 1988, 1990, 1994, 1997, 2001, 2003a; Sternberg & Grigorenko, 1995, 1997; Sternberg & Zhang, 2001) holds that personality-based styles can be understood in terms of constructs from our notions of government. In this view, the kinds of governments we have in the world are not merely coincidental, but rather are external reflections or mirrors of ways in which we can organize or govern ourselves. According to this theory, personality-based styles can be understood in terms of the functions, forms, levels, scope, and leanings of government.

General Characteristics of Personality-Based Styles (Sternberg, 1997)

Some general characteristics of personality-based styles of thought (Sternberg, 1997) include, first, personality-based styles are preferences. For example, there is a difference between how creative a student is (ability based

style) and how much the student likes to be creative (personality-based style) (Sternberg, 1997). Second, personality-based styles are not ‘‘good’’ or ‘‘bad, ’’ but rather matters of fit between learner and teacher or learner and material (Sternberg, 1997). What one teacher considers a good personality-based style, another may consider bad, and vice versa. Third, personality-based styles can vary across tasks and situations (Sternberg, 1997). People vary their personality-based styles, to fit what they are doing, and they do not have one fixed style. Fourth, people differ in strengths of personality based stylistic preferences. Some people strongly prefer certain styles whereas others have only weak preferences (Sternberg, 1997).Fifth; people differ in their personality-based stylistic flexibility. Some people easily can switch among styles; others cannot (Sternberg, 1997). Sixth, personality- based styles are socialized. Styles are learned through interactions with the environment (Sternberg, 1997). Seventh, personality-based styles can vary across the life span (Sternberg, 1997). People may change their styles over the years. Eighth, personality based styles are modifiable (Sternberg, 1997). Finally, what is valued in one time and place may not be valued in another. Environments almost invariably tend to favour certain personality- based styles over others (Sternberg, 1997). The very personality-based style that leads to success in one school or one job may lead to failure in another (Sternberg & Zhang, 2005). Besides, many alternative theories of personality-based styles have been proposed (Biggs, 1988; Entwistle, 1981; Gregorc, 1979; Holland, 1973; Jung, 1923; Marton, 1976; Myers & McCaulley, 1988).

To summarize, it is evident that the distinction among different style constructs are less than clear to researchers in the field. However, constructs of cognitive, perceptual, thinking, learning styles have resurged in academic and non-academic fields recently after a lull period during 1980s. Though there is still no consensus regarding the origin of theoretical roots of varied style constructs, researchers now take up it as a fruitful way of understanding individual differences in various ways of receiving, integrating, and responding to world around. However, it can be definitely stated that styles of

cognition, personality styles as well as action styles affect learning and teaching in schools. While ability based explanations of variation in teaching-learning acts and outcomes in schools are much studied, personality-based variation in teaching-learning scenario have lately been neglected by researchers.

Conceptual Overview of Teaching Styles

Teaching is a performing art. Excellent teachers use their voices, gestures and movements to elicit and maintain attention and to stimulate student's emotions (Grasha, 1996).Like other performers, teachers must convey a strong sense of presence, of highly focused energy (Lowman, 1984). The term teaching styles appeared around the 1970s (Biggs, 2001) when interest began to focus on the role of styles in teaching and learning. The instructors' teaching style represents those enduring personal qualities and behaviours that appear in how he/her conducts the classes.

Teaching Styles Defined

Teaching style is teacher's preferred way of solving problems, carrying out tasks, and making decisions in the process of teaching, and, besides differing from individual to individual, may sometimes differ between different groups, for example schools (Fan & Ye, 2003).Teaching styles develop skills, values and understanding relative to the subject. In addition, teaching style describes the manner in which a teacher manages instruction and the classroom environment. The varied definitions of teaching styles given by various authors during the period 1976-2004 that were obtained from review are given in Table 1.

Table 1

Major Definitions of Teaching Style

Author	Year	Definition of Teaching Styles
Dacey	1976	Teaching style was comprised not of separate distinctive behaviours, but rather a union of behaviours.
Fischer & Fischer	1979	Teaching styles are supposed to define the behaviours that teachers exhibit as they interact with learners…Teaching style is a classroom model, a pervasive way of approaching the learners that might be consistent with several methods of teaching.
Gregorc	1979	Teaching style is a teacher's personal behaviours.
Conti	1979	Teaching style preferences refers to the congruency between adult education practitioners' actual observable classroom behaviour and their expressed belief in the collaborative teaching-learning model.
Eble	1980	Teaching style is represented by those personal qualities and behaviours that appear in conducting classes.
Conti & Welborn	1986	A teaching style is an identifiable set of classroom behaviours associated with and carried out by the instructor. The chosen teaching style is the operational behaviour of the teacher's educational philosophy.
Galbraith & Sanders	1987	Teaching style is defined as an identifiable set of classroom behaviours associated with and carried out by the instructor.
Brookfield	1990	Teaching style is defined as a mode of expression in which the teacher achieves the balance between developing a guiding vision that informs our teaching and responding flexibility to different content.
Hiemlich	1990	Teaching style includes the implementation of philosophy; it contains evidence of beliefs about, values related to, and attitudes towards all the elements of teaching –learning exchange.
Gayle	1994	Teaching styles depends on teachers own needs, professional goals and personal convictions.
Grasha	1994	Teaching style represent a pattern of needs, beliefs and behaviours displayed by teachers in their classroom.
Kaplan & Kies	1995	Teaching style consists of a teacher's personal behaviours and the media used during interaction with learners.
Smith	1997	Teaching styles is defined as those actions, interactions, and communications associated with positive and/or effective outcomes.
Heredia	1999	Teaching style is supposed to define the behaviours that teachers exhibit as they interact with learners.
Grasha	2002	Teaching style is reflected in how faculty present themselves to students, convey information, interact with learners, manage tasks, supervise work in progress and socialize learners to the field.
Heimlich & Norland	2002	Teaching style is a characteristic ways each individual collects, organizes, and transforms information into useful knowledge
Fan & Ye	2003	Teaching styles refer to a teacher's preferred way of solving problems, carrying out tasks, and making decisions in the process of teaching.
Galbraith	2004	Teaching styles comprise attitudes, traits, and qualities of what a teacher displays, educators must reflect on what principles may have created a successful experience for them and for their students.

Teaching style is a union of personal behaviours (Dacey, 1976, Gregorc, 1979), including actions, interactions, and communications (Smith, 1997) exhibited in the pervasive and consistent way the teacher approaches the learners across methods of teaching (Fischer and Fischer, 1979, Heredia, 1999). Style is exhibited in conducting classes (Eble, 1980; Galbraith & Sanders, 1987) and manifests teachers' educational philosophy (Conti & Welborn, 1986). Thus, styles demonstrates the balance between the guiding vision - including beliefs about, values related to, and attitudes towards all the elements of teaching learning (Hiemlich, 1990) that informs teaching - and responding flexibly to practical dimension of teaching. It is the style in which one integrates different content (Brookfield, 1990), needs, professional goals (Gayle 1994; Grasha, 1994); the ways in which one collects, organizes, and transforms information (Heimlich & Norland, 2002); the type and the way of using media during interaction (Kaplan & Kies, 1995), conveying information, interacting with learners, managing tasks, supervising work in progress and socializing learners to the field (Grasha, 2002). Teaching styles also manifests in solving problems, and making decisions in the process of teaching (Fan & Ye, 2003), that directs to successful experience for teachers and for their students (Galbraith, 2004).

Types of Teaching Styles

Various researchers examined teachers' teaching styles and classify them in many ways. Previous researchers illustrated a number of models that characterizes different teaching styles.

Expert, formal authority, personal, facilitator, and delegator styles (Grasha, 1996)

Grasha (1996) argued that there are five main teaching styles that are linked to different outcomes in childhood. They are Expert, Formal Authority,

Personal Model, Facilitator, and Delegator.

The expert possesses the information, knowledge and skills that students need. However, if this knowledge is over-used in the classroom, it may lead to students becoming anxious by the teacher's fruitful base of knowledge (Grasha, 1996). The formal authority teacher focuses on a clear and methodical way of conducting class paired with firm expectations (Grasha). However, an over-investment in this style can lead to rigid, standardized and less flexible way of managing students and student concerns (Grasha).

A teacher who teaches by personal example and who encourages students to observe and emulate the teacher's approach is said to utilize a personal model (Grasha, 1996). In this model, emphasis is placed on observation and following the teacher as a role model. Teachers who utilize this approach tend to feel that their approach is the most effective as a means for instruction (Grasha).

The facilitator style is characterized by a focus on the personal nature of the student–teacher interaction (Grasha, 1996). Teachers who exhibit this style would offer a great deal of flexibility in their teaching and be more prone to a 'student-centered' approach, paired with a willingness to explore alternate ways of completing tasks (Grasha). However, this approach, if not executed in a positive and affirming manner, may lead to students feeling uncomfortable in the classroom due to general uncomfortable feelings in response to the open and expressive atmosphere (Grasha).

Finally, Grasha (1996) states that the delegator style does much to emphasize the student as an independent learner, but the style can be time consuming and may result in misreading of students' readiness to take on independent work. Grasha (1996) cautions that the delegator may contribute

to student anxiety as the student may be given too much autonomy before they are ready to take it on. Therefore, it would seem from Grasha's findings that various teaching styles can either aid or hinder the learning process.

Discipline-centred, teacher-centred, and student-centred styles

Dressel and Marcus (1982) and Woods (1995), categorized teaching styles as discipline-centered, teacher-centered, and student-cantered. In discipline-centered model, the course has a fixed structure. In teacher-centred model, the teacher is considered as an authoritative expert, the main source of knowledge, and the focal point of all activity. In this teaching model, students are passive recipients of the information. According to Lackey (1997), lecture obviously reflects teacher-centered style and requires a passive role for students. In student-centered model, on the other hand, instruction focuses on the student and his/her cognitive development and, the teacher's goal is to help students in acquiring the development of knowledge as a process rather than a product. Flanders (1970) used different terminology and named teacher-centered teaching as direct style, student-centered teaching as indirect style and discipline-centered teaching as eclectic style.

Weinberg (1983) worked on teaching styles and identified the following four teaching styles: direct teaching, peer teaching, problem solving, and group approach. First, in direct teaching style, the teacher makes all of the decisions. S/he describes and demonstrates what is to be learned, evaluates it and gives feedback. This style needs very little cognitive or affective involvement on the student's part. Second, peer teaching style pairs two students of differing ability levels with one another. The teacher describes and demonstrates the desired response. The students evaluate each other using criteria presented by the teacher. Third, in problem solving style, the teacher sets a problem and the students respond it in most appropriate ways for them. Models come from student creativity and other students' responses. And last,

group approach style is used to foster social skills as well as promote acceptance among different ability levels. Brieflytosummarize, the teacher-centred style is traditional and requires lecture. In discipline-centered style, however, teachers appear to place subject matter knowledge as the central focus of their beliefs and actions instead of placing teaching or students at the center. Programmed learning materials, printed study guides, prepared curricular materials, and research papers can be used (Lackey, 1997).

Discipline-centered teaching strategies tend to be teacher-centered, but also include hands on activities, laboratories, demonstrations, group work like co-operative learning and discussions. Therefore, this technique creates students with positive learning environment to clarify their understanding and present their ideas (Patricia, et al., 1999). Briefly, discipline-centered teaching style has characteristics of both teacher-centered style and student-centered style. Hence, using discipline-centered style as transitional style may be acceptable.

In student-centered style, activities such as group discussions and group or individual reports are used (Lackey, 1997). This style is individualized to provide accommodation to students' cognitive, affective, behavioral and physical needs during the teaching and learning process (Shreves, 1998). It seems from these two statements that student-centered style refers to individualized teaching approach.

Berger (1974), in addition, determined three kind of teaching behaviors as teacher oriented, student oriented, and student-teacher cooperation oriented. Lenz (1982) identified two teaching styles: proactive and reactive. Robinson (1979) categorized teaching styles into five classes ranging from "highly content centered" to "highly people centered". Alexlord (1970) identified five teaching styles a) drill master b) content-centered c) instructor-centered d) intellect centered e) person centered.

Individualizing, transitional, and traditional teaching styles

Dunn and Dunn (1977) created a teaching style framework to reflect their comprehensive learning style model. Based on the responses on a self-evaluative instrument, teachers were rated in each category as individualizing, somewhat individualizing, transitional, somewhat traditional, and traditional.

Task-oriented, co-operative planner and learning-centered approach to teaching styles

Henson and Borthwick (1984) suggested six styles of teaching, which includeTask-oriented, co-operative planner and learning-centered approach to teaching styles in addition to discipline-centered, teacher-centered, and student-centered styles that were discussed in the earlier section. In a task-oriented approach, planned tasks associated with appropriate materials are prescribed. In a co-operative planner approach an instructional venture is planned by teachers and students collaboratively, though the teacher is in change. In a child-centered approach, the task structure is provided by the teacher and the students choose from options according to their interests (Henson & Borthwick, 1984). In a subject-centered approach, the content is planned and structured to the extent that students are nearly excluded from the process. In a learning-centered approach, equal concern is shown by the teacher for both the student and the subject content. Finally an emotionally exciting approach, the styles are not mutually exclusive (Henson & Borthwick, 1984). They should be used in conjunction with each other and probably are most effective when they are so used.

Theory of mental self-government teaching styles (Grigorenko & Sternberg, 1993)

In light of the theory of Mental Self-Government, Grigorenko and Sternberg (1993) proposed seven teaching styles consisting of only Type I and Type II

styles, and operationalized them through the Thinking Styles in Teaching Inventory (TSTI; Grigorenko & Sternberg, 1993). This inventory deals with just three of the five dimensions of thinking styles (function, level, and leaning). The seven styles in teaching are: (1) the legislative style, the main feature is creative; (2) the executive style, aiming at conforming; (3) the judicial style, promoting analytical ability; (4) the local style, focusing on concrete ideas or details; (5) the global style, focusing on abstract thinking or general problems; (6) the liberal style, whose central characteristic is employing new ways to deal with tasks, and (7) the conservative style, whose core characteristic is employing traditional ways to deal with tasks (Fan & Ye, 2003).

Bipolar classifications of teaching styles

In the middle of the 20th century, a linear model of teaching style emerged and teachers were categorized as direct/indirect (Cory, 1940; Flanders, 1960; Tuckman, 1970), directive/permissive (Wispe, 1951), and formal/ informal (Bennet, 1976).In these models, teaching behaviour was rated along a continuum; the teacher was in control at one end and the student had more freedom at the other (Dunn & Griggs, 2003).

Anderson's (1959) proposed that teaching styles were arranged on a continuum from authoritarian on the one end to democratic to laissez faire to the other end. Soar (1968) utilized a continuum with direct and indirect teaching styles on the extremes and a mixed style in the middle.

Mosston's spectrum of teaching styles (Mosston & Ashworth, 2002) primarily used in physical education consists of ten types of teaching styles, moving from teacher centered to child centered. Command style is a teacher-centred style in which teacher delivers knowledge and pupils remain passive. In Practice style, pupils carry out tasks set by the teacher. Teacher may work

with groups as the task is completed. In Reciprocal style, pupils work in pairs: a ‘doer’ and ‘teacher-partner’ who evaluates the ‘doer’s’ work. Teacher works with the ‘teacher-partner’ to improve their evaluative skills. Pupils learn to judge performance against criteria (Mosston & Ashworth, 2002). Self-check style allows the teacher sets the task; pupils complete it and evaluate their own performance; in collaboration with teacher, set new targets. Pupils move on when they are ready (Mosston & Ashworth, 2002).In Inclusion style, differentiated tasks are set to ensure all pupils experience success and progress. In Guided discovery style, teacher sets individualized learning programmes for pupils based on their cognitive development; considered difficult in large groups. In Convergent discovery style, teacher has a defined learning outcome in mind but pupils can decide the processes and presentation technique to reach that outcome and, teacher guides as required. In the style of Divergent discovery, multiple solutions are possible to a task (e.g. design problem) and pupils devise their own routes, with guidance, and assess the validity of their final solution (Mosston & Ashworth, 2002).In Learner-designed style, pupil designs and carries out a programme or investigation to answer a particular question; requires knowledge and skills built up in earlier learning experiences. In Learner-initiated style, pupil provides a question for investigation as well as designing and carrying out the investigation (Mosston & Ashworth, 2002). A summary of the types of teaching styles classified by different scholars are given below in Table 2.

Table 2

Summary of Categories of Teaching Styles found in Review

Author	Year	Categories of Teaching Styles
Cory	1940	Direct, Indirect
Wispe	1951	Directive, Permissive
Anderson	1959	Authoritarian, Democratic, Laissez-faire
Flanders	1960	Direct, Indirect
Soar	1968	Direct, Mixed, Indirect
Tuckman	1970	Direct, Indirect
Flanders	1970	Direct, Indirect, Discipline centered
Alexload	1970	Intellect centered, Instructor centered, Drill centered, Person centered, Content centered
Berger	1974	Teacher centered, Student centered, Student-Teacher Cooperation Centered
Bennet	1976	Formal, Informal
Dunn & Dunn	1977	Individualizing, Somewhat individualizing, Transitional, Somewhat traditional, Traditional
Lenz	1982	Proactive, Reactive
Drussel & Marcus	1982	Teacher-centered, Student-Centered, Discipline-centered
Weinberg	1983	Direct, Peer, Problem Solving, Group Approach
Henson & Borthwick	1984	Task-oriented, Cooperative planner, Child-centered, Subject-centered, Learning –centered, Emotionally exciting
Jarvis	1985	Socratic, Didactic, Facilitative, Student reactive
Robinson	1986	Lecturing/Charismatic, Teacher centered, Child centered
Grigorenko & Sternberg	1993	Legislative, Executive, Judicial, Global, Local, Liberal, Conservative
May Oi & Stimpson	1994	Guided learning, Exposition, Inquiry
Heimlich & Norland	1994	Expert, Provider, Facilitator, Enabler
Quirk	1994	Assertive, Suggestive, Collaborative, Facilitative
Grasha	1996	Expert, Formal Authority, Personal, Facilitator, Delegator
Mosston & Ashworth,	2002	Command, Practice, Reciprocal, Self-check, Inclusion, Guided discovery, Convergent discovery, Divergent discovery, Learner designed, Learner initiated.

Teaching Style Models

Teaching style has obtained much attention over the years, however, experts have failed to reach consensus on a definitive meaning. Some argued that teaching style is an external characteristic that can be manipulated to match student learning styles (Conti, 1989) and, others argued that teaching style can be defined as an educator's specific traits and characteristics

displayed and practiced in the teaching and learning process (Dunn & Dunn, 1972; Fischer & Fischer, 1979; Grasha, 2002). Conti (1989) asserted that most of the scholars who discuss the concept keep away from defining teaching style and, instead, they tend to talk about the elements that make up a teacher's style.

In *Effective Teaching Styles* (1989), Hayes put forward that research and practical experience indicated that good teaching depends on a combination of personal traits, attitudes, and knowledge. It is also the ability to select and use appropriate instructional methods and techniques. 'Teaching style'attempts to clarify the mixture of qualities that characterize individual approaches to teaching. Joyce and Weil (1966) stated that there is no one right way to teach. The individual children respond differentially to different teaching styles. One teaching style may be more effective at a particular time for a particular person than some other style.

There are a myriad of teaching style definitions and instruments developed to assess individual teaching style preferences. An overview of some of the models will be helpful to illustrate better the conceptual understanding of teaching style.

Joyce and Weil's Models of Teaching

Joyce and Weil (1996) conducted extensive research on models of teaching that were supported by theoretical foundations, had long histories of practice, and were flexible and which could be adapted to meet a variety of learning styles needs of learners and requirements of the subject matter. Joyce and Weil (1996) hypothesized that, how teaching is conducted has a large impact on students' abilities to educate themselves. Joyce and Weil's (1996) models of teaching were grouped into four families that share orientations toward human beings and how they learn. Social family models focus on

strategies designed to build learning communities. These include structured inquiry, group investigation, role playing, and jurisprudential inquiry. Information-Processing family models include inductive thinking, mnemonics, advance organizers, scientific, inquiry, and inquiry training. Personal family models focus on developing partnerships between the teacher and student. This approach is accomplished through nondirective teaching and methods that help enhance student self-esteem and self-understanding. Lastly, the behavioural systems family models are guided by the social learning theory which is known as behavior modification. Behavioural models include mastery learning, direct instruction, and simulation.

Fischer and Fischer model

Teaching style may be defined as the intrinsic behaviors a teacher exhibits in the classroom (Fischer & Fischer, 1979). Fischer and Fischer theorized that teaching style constituted distinctive qualities of behavior that are consistent over time. For this definition, style was determined as a pervasive quality in the behavior of an individual, a quality that persists though the content may change (Fischer and Fischer, 1979). It is stressed that teaching style was not to be confused with teaching method as individuals incorporate a variety of methods with their styles.

Further, the Fischer and Fischer model defined teaching style as a classroom mode, a pervasive way of approaching the learners that might be consistent with several methods of teaching (Fischer and Fischer, 1979). Teaching styles were categorized as task oriented, cooperative planner, child centered, learning centered, subject centered, and emotionally exciting (Fischer & Fischer).

Dacey model

Dacey (1976, as cited in Dunn & Frazier, 1990) postulated that teaching style was comprised not of separate, distinctive behaviours (Fischer and Fischer, 1979), but rather, a union of behaviours. This definition described teaching style as built on five important factors: goals, leadership role, expectations, self-image, and directness of influence.

Canfield and Canfield Model

Researchers Canfield and Canfield (1988, as cited in Stitt-Gohdes, Crews, & Mc. Cannon, 1999) designed the Instructional Styles Inventory (ISI) to assess and describe the individual's preferred style of instruction. Teaching styles were categorized along two basic dyads–social/independent and conceptual/applied: A social style preference indicates a social interaction between students, and between student and instructor, in the design and delivery of group discussions and teamwork-oriented instruction. The independent style teacher prefers to set self-paced situations in which students develop and pursue individual goals. The applied style includes a focus on realistic, authentic situations and working experiences with a 'hands-on' approach to the extent possible. The conceptual teacher prefers highly organized, language-oriented activities, such as reading and lecture. In addition to these four basic styles, the ISI includes a neutral style that indicates no strong teaching style preferences and may involve individual approaches deemed necessary for the situation. Furthermore, there are four mixed styles that combine some of the components of each of the constituent styles: social/applied, social/ conceptual, independent/applied, and independent /conceptual.

Conti's Model

An instrument used to assess teaching style called as Conti's Principles of Adult Learning Scale (PALS), which determines the teacher's preferences for a learner-centered or teacher-centered style (Conti, 1989). Using a modified Likert scale, individuals are scored on 44 items indicating the frequency with which they practice the actions described in the items. The PALS score, indicating the teacher's overall teaching style, can be broken down into seven factors: (1) learner-centered activities; (2) personalizing instruction; (3) relating to experience; (4) assessing student needs; (5) climate building; (6) participation in the learning process; and (7) flexibility for personal development. Conti (1989) noted that instruments like PALS can be useful in assessing teaching style as teachers need to know their own personal teaching philosophy and the degree to which their actions reflect this set of beliefs (Conti, 1989).

Grasha's Model

Grasha (1994) asserted that teachers and students have clearly defined goals and, defined teaching style as reflected in how faculty present themselves to students, convey information, interact with learners, manage tasks, supervise work in process, and socialize learners to the field (Grasha, 2002).Grasha (2002) identified five teaching styles. These are categorized as Expert, Formal Authority, Personal Model, Facilitator, and Delegator. The Expert teacher strives to maintain status as an expert by displaying detailed knowledge. Oversees, guides, and directs students with frequent references to information and facts. The Formal Authority teacher gains status among learners because of knowledge, position as a senior person in the field, and whatever formal organizations roles might be held. Oversees, guides, and directs by referencing the correct, acceptable and standard ways to do something (Grasha, 2002).The personal model believes in leading through

personal example. Oversees, guides, and directs by showing learners how to do things, by encouraging them to observe, and then emulate the teacher's approach. The facilitator teacher incorporates a flexible approach to lesson delivery. Oversees, guides, and directs learners by asking questions, exploring options, suggesting alternatives, and helping them to develop criteria to make informed choices about courses of action (Grasha, 2002).The Delegator style uses a student-centered approach to teaching by encouraging students to take responsibility and initiative while developing their capacity to function in an autonomous fashion (Grasha, 2002). Grasha's (2002) research has indicated that most faculty exhibit a dominate style or a blending of styles that become dominate in teaching.

Dunn and Dunn's (1977) Teaching Style Model

Dunn and Dunn's (1977) teaching style model is based on the theory that educators' styles of teaching directly impacts student learning. Any good philosophy of education includes individual student growth and development through at least five central considerations: acquiring basic knowledge and skills; developing a love of learning; learning how to learn; releasing and fostering creativity; and developing an increasingly positive self-image. The realization of these exemplary goals for students depends in great measure on the development of teacher strengths in a number of critical areas, which can be defined as teaching style (Dunn & Frazier, 1990).According to the Dunn and Dunn model, teaching styles are comprised of the following major elements: instructional planning, teaching methods, teaching environments (i.e., student grouping, room design, and learning environment), evaluation techniques, educational philosophy, and teaching characteristics and classroom management (Dunn & Frazier, 1990).

Each of these elements combined to form a teacher's particular style, which differentially affects students' learning. This concept of teaching style

produces a profile of teacher characteristics ranging from favouring recitation and drill, to a whole class approach, to individualized instruction (Dunn & Frazier, 1990).

Sternberg and Grigorenko on Teaching Styles

Sternberg (1997) argues that teachers are very flexible in the use of their teaching styles and always try to select the optimal teaching style to "manage" their classroom instruction in the light of specific circumstances. A variety of factors can influence teachers' choices of teaching styles, such as their educational experience, their professional level, and their dedication to teaching. Sternberg (1997) concludes that teachers' teaching styles could socialize in part over time and according to their working environment.

In a study with 85 teachers from four schools in the USA, Sternberg and Grigorenko, 1995; Sternberg, 1997) found that there were significant relationships between styles and a number of variables: grades taught, teaching experience, teachers' ages, subject areas taught, and ideology. First, the lower grade teachers were more legislative and less executive than the upper grade teachers. This meant that the former preferred creative-generating thinking and did not like norm-favouring thinking than did the latter.

Second, the more experienced teachers were more executive, local, and conservative than the less experienced teachers; and older teachers were more executive, local, and conservative than younger teachers. That is to say, abundant teaching experience based on, for example, teaching and life might block teachers' creativity and make them become conservative and obedient.

Third, science teachers tended to be more local than the teachers of humanities, while the latter tended to be more liberal than the former. This meant that science teachers preferred concrete or tiny details, but humanities teachers had more open thinking. Fourth, the schools themselves differed in

terms of profiles of styles of teachers. Lastly, and connected to the previous points, teachers tended to match the stylistic ideology of their schools.

In other studies, Zhang (2001) and Zhang and Sternberg (2002) validated the TSTI (Grigorenko & Sternberg, 1993) in a Far Eastern cultural setting, in both cases with Hong Kong teacher samples. Zhang and Sternberg's (2002) study also examined the relationships between the thinking styles and the characteristics of the teachers: gender, professional work experience outside school settings, the degree of enjoyment in adopting new instructional materials, the tendency to use group projects in assessing student achievement, perceived autonomy in determining teaching content, and their rating of the quality of their students. They obtained significant results in the relationships between teachers' styles and these features. For instance, they found that male teachers scored higher on the executive thinking style than female teachers, and teachers' professional work experience outside school settings was positively related with the judicial and liberal styles.

Measurement of Teaching Styles

The first instruments developed to identify teaching behaviour were observer rated devices that produced a profile of teacher's behaviours on a continuum of direct to indirect (Dunn & Griggs, 2003).The Flanders Interaction Analysis Category System (FIACS) (Flanders, 1960) and the Observation Schedule and Record (OscAR 4V) (Medley & Hill, 1973) were pioneering assessments that paved the way for preparing teacher practice with academic achievement.

A few researchers developed instruments for which student opinion was used to create a typology of teaching style: Student Perception of Teaching Styles (SPOTS) (Tuckman, 1970), and Questionnaire of Teacher

Interaction (QTI) (Wubbles & Levy, 1991). The majority of devices used to quantify teacher behaviour were teacher assessment devices : Teaching Style Q-Sort (TSQS) (Heikkinen, 1978);Principals of Adult Learning Scale (PALS) (Conti, 1978);Teaching Style Inventory (TSI) (Dunn & Dunn, 1993); Teaching Style Inventory (TSI) (Grasha, 1994);and the Instrumental Self-Assessment Survey (ISAS) (Frazier, 1992).The most recent instrument developed, the Instrumental Self-Assessment Survey-Revised (ISAS-R) (Mawhinney, 2002), fell into this latter category (Dunn & Griggs, 2003).

The ISAS-R contains 39 questions that elicit self-diagnostic responses on a five point Likert-type scale. Validity for the ISAS-R was established through factor analysis procedures and reliability was obtained using Cronbach's alpha (Mawhinney, 2002).The instrument evaluates a teacher's self-assessment practices in seven areas: grouping patterns, methods and materials, student involvement, goal setting, learning style diagnosis and instruction, teaching environment and classroom design, and facilitator/coach. A score of between one (traditional) and five (individualized) indicates the level of individualization being employed by that educator. A philosophy score were also computed in two areas namely traditional beliefs and learning style beliefs (Dunn & Griggs, 2003).

The Teaching Style Inventory of Grasha (1996) consists of 40 items, covering the components of five teaching styles: expert; formal authority; personal; facilitator and delegator. Eight items for each style and follows a 7 point scale type. The Teaching Style Inventory, developed by Rita Dunn and Kenneth J. Dunn (1977), is a 66 item instrument covering the major components.Conti's (1989) Principles of Adult Learning Scale (PALS), consist of 44 items Likert scale which determines the teacher's preferences for a learner-centered or teacher-centered style.

Conceptual Overview of Thinking Styles

The term *thinking styles* is defined as one's habitual patterns or preferred ways of thinking while doing something (Sternberg, 1993, 1997). Sternberg was not the first person to use the concept of thinking styles. Torrance, Reynolds, and Ball (1977) related thinking styles to the functioning of the brain's hemispheres: left-brain style and right-brain style. According to Sternberg (1993; 1997), thinking styles are related to the self-government of abilities. They are characteristic ways of thinking and preferences about how we utilize the abilities we have.

Understanding thinking styles helps teachers differentiate instruction to maximize the learning outcomes of all learners (Sternberg, 1997; Sternberg & Grigorenko, 1997). Indeed, learning approaches are related to thinking styles (Zhang, 2000). Styles can apply at any level from elementary school (Sternberg & Grigorenko, 1995) through the university level (Cilliers & Sternberg, 2001).

The Theory of Mental Self-Government

The theory of mental self-government (Grigorenko & Sternberg, 1995; Sternberg & Zhang, 2001) holds that styles can be understood in terms of constructs from human notions of government. Using the word government metaphorically, Sternberg (1988, 1997) contended that just as there are many ways of governing a society, there are many ways of governing or managing our activities. These different ways of managing our activities can be construed as our thinking styles. Thinking styles are defined as our preferred ways of using the abilities that we have (Sternberg, 1997). In managing our activities, we choose styles with which we feel comfortable. Moreover, styles are flexible (Sternberg, 1997), and one can achieve success by adapting as per the stylistic demands of a given situation. Besides, styles may change with

time and with life demands. One of the important features of thinking styles, according to Sternberg (1997), is that they are at least partially socialized, suggesting that thinking styles can be cultivated and modified.

The theory of mental self-government describes thirteen thinking styles that fall along five dimensions. There are three functions (legislative, executive, and judicial styles), four forms (hierarchical, oligarchic, monarchic, and anarchic styles), two levels (global and local styles), two scope (internal and external styles), and two leanings (liberal and conservative styles) of mental self-government

The theory of mental self-government can be viewed as a general model of styles not only because the theory can be applied to various settings, academic and non-academic, but also because it embraces all three traditions (cognitive, personality and activity) in the study of styles. The styles in this theory are cognitive in their way of looking at things (e.g., judicial style, global style, and so forth) and correspond to preferences in the use of abilities. But the styles are typical-performance, rather than maximal-performance. Therefore, they resemble the personality-centered tradition. Finally, the styles resemble the activity-centered tradition in that they can be measured in the context of ongoing activities.

The theory of mental self-government possesses two differentiating characteristics when compared with most previous models of styles. First, the styles it specifies fall along five dimensions, rather than along one. Second, the theory yields a profile of styles for each individual, rather than merely the identification of a single style.

Sternberg enumerated fifteen points needed to understand thinking styles (Sternberg, 1997, p. 79-98): (1) styles are preferences, not abilities; (2) a match between styles and abilities creates a synergy; (3) life choices should

fit styles and abilities; (4) people have profiles or patterns, not just one single style; (5) styles vary across tasks and situations; (6) people's preferences differ; (7)) people's stylistic flexibilities differ; (8) styles are socialized; (9) styles can vary across the life span; (10) styles are measurable; (11) styles are teachable; (12) styles valued at one time may not be valued at another; (13) styles valued at one place may not be valued at another; (14) Styles are not usually good or bad, it is a question of fit; and (15) styles must not be confused with abilities. Based on the above 15 key principles of styles, (Sternberg (1997; Sternberg & Zhang, 2005) gave specific definitions to all 13 styles that belong to five dimensions.

Functionsof thinking styles

There are three functions of mental self-government in the theory: legislative, executive, and judicial. A brief description of 13 Thinking Styles is given in Table 3.

Table 3

A Brief Description of 13 Thinking Styles (Sternberg, 1997)

Dimensions	**Styles**	**Key Characteristics**
Functions	Legislative	Being creative
	Executive	Being conforming
	Judicial	Being analytical
Forms	Monarchic	Dealing with one task at a time
	Hierarchic	Dealing with multiple prioritized tasks
	Oligarchic	Dealing with multiple non-prioritized tasks
	Anarchic	Dealing with tasks at random
Levels	Global	Focusing on abstract ideas
	Local	Focusing on concrete ideas
Scopes	Internal	Enjoying working independently
	External	Enjoying working in groups
Leanings	Liberal	Using new ways to deal with tasks
	Conservative	Using traditional ways to deal with tasks

Legislative. An individual with the legislative style enjoys creating and formulating rules, and prefers to work on tasks that require creative strategies and to choose one's own activities. The legislative student has a preference for tasks, projects, and situations that require creation, formulation, planning of ideas, strategies, etc. This kind of student likes to decide what to do and how to do it, rather than to be told (Sternberg & Zhang, 2005). A legislative teacher often enjoys being engaged in tasks that require self-instruction and self-direction and fostering creativity.

Executive.An individual with the executive style is more concerned with implementation of tasks with given rules, and prefers to work on tasks with clear instructions and structures and to implement tasks with a set of guidelines. The executive student has a preference for tasks, projects, and situations that provide structure, procedures, or rules to work with, and can serve as guidelines to measure progress (Sternberg & Zhang, 2005). The executive student often prefers to be told what to do, and will then give it his or her best shot at doing it well (Sternberg, 1997). An executive teacher finds more satisfaction in the implementation of tasks with clear instructions.

Judicial An individual with the judicial style likes to evaluate existing rules, ways, and ideas, and prefers to work on tasks that allow for one's evaluation, as well as preferring to evaluate and judge the performance of other people. The judicial student has a preference for tasks, projects, and situations that require evaluation, analysis, comparison–contrast, and judgment of existing ideas, strategies, projects, etc. (Sternberg & Zhang, 2005). The judicial person tends to like evaluative essays, commenting on other people's ideas, and assessing others' strengths and weaknesses (Sternberg, 1997). A judicial teacher focuses attention on evaluating the products of activities.

Forms of thinking styles

The form dimension of mental self-government consists of four styles: monarchic, hierarchic, oligarchic, and anarchic.

Monarchic An individual with the monarchic style prefers to work on tasks that allow complete focus on one thing at a time. The monarchic pupil has a preference for tasks, projects, and situations that allow focusing fully on one thing or aspect at a time, and staying with that thing until it is complete A monarchic teacher might be one who has a preferred way of doing things, and who does not much like to do things in other ways (Sternberg & Zhang, 2005).

Hierarchic An individual with the hierarchic style allows for multiple goals that are prioritized and prefers to distribute attention to several tasks that are prioritized according to one's valuing of the tasks. The hierarchic pupil has a preference for tasks, projects, and situations that allow creation of a hierarchy of goals to fulfil (Sternberg & Zhang, 2005). A hierarchic teacher might be one who carefully sets priorities and then sticks to them.

Oligarchic An individual with the oligarchic style also allows for multiple goals during the same period, but all of which are roughly equal in importance. The oligarchic pupil has a preference for tasks, projects, and situations that allow working with competing approaches, with multiple aspects or goals that are equally important (Sternberg & Zhang, 2005). This student likes to do multiple things within a given time frame, but has trouble setting priorities. An oligarchic teacher might be one who does not easily allocate class time so that the most important things receive the most coverage (Sternberg, 1997).

Anarchic An individual with the anarchic style enjoys working on tasks that allow flexibility as to what, where, when, and how one works, and

eschews systems of almost any kind. The anarchic student has a predilection for tasks, projects, and situations that lend themselves to great flexibility of approaches, and to trying anything when, where, and how he or she leases (Sternberg & Zhang, 2005). The anarchic pupil may have good potential for creativity, because the individual draws ideas from so many places, but the pupil usually needs to discipline him- or herself. Teachers can assist anarchic students by helping them be organized and channel their creativity constructively. An anarchic teacher might be one who is much disorganized in his teaching style, but who nevertheless is very creative and sparks creative ideas in his students (Sternberg & Zhang, 2005).

Levels of thinking styles

There are two levels of mental self-government: global and local.

Global An individual with the global style prefers to pay more attention to the overall picture of an issue and to abstract ideas. The global pupil has a preference for tasks, projects, and situations that require engagement with large, global, abstract ideas (Sternberg & Zhang, 2005). This person likes to deal with big ideas, but sometimes can lose touch with the details. A global teacher tends to be very general in her teaching and to concentrate on the big picture rather than the details (Sternberg, 1997).

Local An individual with the local style prefers tasks that require engagement with specific and concrete details. The student with a local style has a preference for tasks, projects, and situations that require engagement with specific, concrete details (Sternberg & Zhang, 2005).Students with this style tend to enjoy tasks that require them to keep track of details and to focus on concrete specifics of a situation. A local teacher tends to be very detail-oriented in lecturing (Sternberg, 1997).

Scope of thinking styles

The scope dimension of mental self-government covers external and internal styles.

External An individual with the external style prefers to work on tasks that allow for collaborative ventures with other people (Sternberg & Zhang, 2005). The external student has a preference for tasks, projects, and situations that require activities that allow working with others in a group or interacting with others at different stages of progress. An external teacher would probably welcome team teaching or other opportunities to collaborate with fellow teachers (Sternberg, 1997).

Internal An individual with the internal style enjoys engaging in tasks that allow him or her to work alone, independently of others. The internal student has a preference for tasks, projects, and situations that allow him or her to work independently of others (Sternberg & Zhang, 2005).This individual is typically introverted and often uncomfortable in groups. An internal teacher may avoid team teaching and prefer to teach on his own (Sternberg & Zhang, 2005).

Leanings of thinking styles

There are two leanings of mental self-government: liberal and conservative.

Liberal An individual with the liberal style enjoys going beyond existing rules and procedures and engaging in novel and ambiguous tasks (Sternberg, 1997; Sternberg & Zhang, 2005).The student with a liberal style has a preference for tasks, projects, and situations that involve unfamiliarity, going beyond existing rules or procedures, and maximization of change. Students with a liberal style like new challenges and thrive on ambiguity. A

liberal teacher likes to teach in new ways and to try new teaching techniques (Sternberg & Zhang, 2005).

Conservative An individual with the conservative style adheres to the existing rules and procedures in performing tasks The conservative pupil has a preference for tasks, projects, and situations that require adherence to and observance of existing rules and procedures (Sternberg, 1997; Sternberg & Zhang, 2005). This individual likes to minimize change and avoid ambiguity. A conservative teacher likes to teach in traditional ways and may be hesitant to try new ways of teaching (Sternberg & Zhang, 2005).

Measurement of Thinking Styles

The theory of mental self-government has been operationalized through several instruments. Sternberg and his colleagues have designed five inventories to measure people's thinking styles, based on the theory of mental self-government: (a) the Thinking Styles Inventory (Sternberg & Wagner, 1992), (b) the Set of Thinking Styles Task for Students (STSTS, Grigorenko & Sternberg, 1993a), (c) the Students' Thinking Styles Evaluated by Teachers (STSET, Grigorenko & Sternberg, 1993b), (d) the Thinking Styles in Teaching Inventory (TSTI, Grigorenko & Sternberg, 1993c), and (e) the Thinking Styles Inventory-Revised (TSI-R, Sternberg, Wagner, & Zhang, 2003).

The 13 thinking styles that compose the five dimensions proposed in MSG theory are operationalized by the TSI (Sternberg & Wagner, 1992), a 104-item scale with eight questions targeting each style. Individuals rate the eight items within each subscale from 1–7 indicating how well each statement describes them, where 1 = *not at all well* and 7 = *extremely well*. A mean subscale rating that is close to 7 is a high score and is interpreted as a preference for that thinking style. Mean ratings closer to 1 are interpreted as

"low" ratings for that subscale and indicate a lack of preference for that style (Sternberg, 1997).

The TSI short version is a 65- item self-report measure, consisting of 5 items for each of the 13 subscales, in which respondents rate themselves on a 7-point scale ranging from 1 (*low*) to 7 (*high*) on a number of preferences. For the revised inventory, with the exception of that for the anarchic scale, Cronbach's alpha coefficients for the scales range from the low .70s to the high .80s. Cronbach's alpha coefficient for the anarchic scale is in the mid .50s. Internal validity of the inventory was assessed through factor analysis.

External validity of the inventory was assessed by examining the nature of thinking styles not only against a number of constructs that belong to the family of work on styles but also against a few constructs that are predicted to be related to thinking styles In its original form, the Thinking Styles Inventory along with other inventories were tested in the United States by Sternberg and Grigorenko (1995; Grigorenko and Sternberg, 1997). The TSI has been proved to be reasonably reliable and valid for identifying thinking styles of students in the USA, Hong Kong, mainland China, and the Philippines.

The Thinking Styles Questionnaire for Teachers is a self-report measure, but especially designed for assessing teachers' thinking styles. The TSQT is a 49-item self-report questionnaire in which participants are asked to rate themselves on a 7-point Likert scale, with 1 denoting that the statement does not describe them at all, and 7 denoting that the statement describes them extremely well. The instrument was designed to assess seven thinking styles of teachers: legislative, executive, judicial, global, local, liberal, and conservative. Each style is assessed by seven items that constitute one scale (Zhang & Sternberg, 2002).

The STSTS is a set of 16 different tasks and preference items. The student respondents have to solve problems and make choices. Every response is coded via a scoring map of correspondence between responses and styles (Grigorenko & Sternberg, 1993a). The STSET consists of 56 statements that allow teachers to evaluate their students' thinking styles (Grigorenko & Sternberg, 1993b).

Three types of thinking styles

Based on empirical evidence, Zhang and Sternberg (Sternberg & Zhang, 2001; Zhang, 2001b, 2002b, 2002c; Zhang, 2002d, 2002e; Zhang & Sternberg, 2000) classified nine of the 13 thinking styles into two groups, called the Type I thinking styles, including styles associated with greater cognitive complexity, such as legislative, judicial, hierarchic, global, and liberal styles which tend to be more creativity-generating, and the Type II thinking styles, involving styles associated with less cognitive complexity, such as executive, monarchic, local, and conservative styles which suggest a norm-favouring tendency. Subsequently, Zhang (2003a) grouped the remaining four styles (internal, external, oligarchic, and anarchic) as Type III styles. Type III is more flexible than Type I and Type II because the use of Type III styles is more dependent on specific contexts or tasks (Zhang, 2003a).

Conceptual Overview of Learning Styles

Learning style is an on-going issue of great importance to educational research and gained prime importance in the leaching learning process. For many years, research has paved a path on the subject of learning styles by experts, educators, psychologists, sociologists, universities, public schools, private schools, doctors, and lawyers (Bloom, 1956; Dunn & Dunn, 1993; Gregorc, 1982; Jung, 1971; Kolb, 1985; Schmeck, 1988).

Research about learning styles began to develop several decades ago from several different directions.These included earlier studies on cognitive growth, the areas of intelligence and behaviour, and the influence of school, classroom environmental and social factors on students.Learning styles can be defined, classified, and identified in many different ways. In 1921 Carl Jung emphasized learning from human personality types (Jung, 1971). Benjamin Bloom (1956) emphasized learning from cognitive, affective, and psychomotor skills. Gregorc (1978) based learning on perceptual preferences, concrete and abstract, and ordering preferences, sequential and random. David Kolb (1984) defined the way people learn though feelings or through thinking.

In 1956, Benjamin Bloom, in *Human Characteristics and School Learning*, proposed a theory about the interdependent factors that explain the differences in student learning. Blooms described three domains of learning factors: cognitive, affective, and psychomotor (Bloom, 1956). The cognitive domain consists of mental skills or knowledge. This domain involves the development of knowledge and intellectual skills. The affective domain consists of growth in feelings, emotions, or attitude. The affective domain involves how a person deals with things emotionally. The psychomotor domain consists of physical or manual skills. This domain includes physical movement or the use of the motor skills. According to Bloom's theory, each domain must be mastered before the next one can take place (Bloom, 1956).

Definitions of Learning Style

The scholars defined learning style, like other constructs in the style literature, in different ways. Coffield, Ecclestone, Hall, and Moseley (2004) admitted that the definition of learning style was confused and inaccurate because each discipline defined it from its own perspective. As a result there is no holistic theory of learning style. Curry (1990) identified several

complexities to a clear understanding of learning style: The overlapping definitions resulted in learning strategies that were ill-defined making it hard to tie a strategy to a style, research results were not reproducible, the learning style instruments lacked validity, and their results lacked reliability. Research results on the effect of learning styles on learning outcomes is inconclusive (Coffield et al, 2004), and there has also been a scarcity of research that learning styles with instructional strategies or with teaching styles.

Some researchers define learning styles as fixed traits based on genetics or brain physiology that can be influenced by the learning environment and personality (Dunn, 1990; Dunn & Dunn, 1978; Gregorc, 1979). Some other group believes that learning styles are cognitive processes or abilities inherent to the person that use changeable learning strategies to attain a specific behaviour (Kogan, 1973; Riding, 2002; Witkin & Goodenough, 1981). A third group of researcher's base their interpretation of learning style on the work of the psychologist Jung who believed that learning style was an expression of personality (Apter, Mallows, & Williams, 1998; Myers & McCaulley, 1985).The fourth group considered learning styles as stable learning preferences that can change slightly based on experiences or situations (Honey & Mumford, 1992; Kolb, 1984; McCarthy, 1990), and a final group of researchers determined to describe learning styles in terms of approaches and strategies (Entwistle, 1978; Vermunt, 2005).

The varied definitions of learning style presented by different scholars are given below in Table 4.

Table 4

Definitions of Learning Style

Authors	Year	Learning Style Definitions
Hunt	1970	Describes a student in terms of those educational conditions under which he/she is most likely to learn
Hill	1976	Unique way in which an individual searches for meaning.
Messick	1976	Consistent orientations towards learning and studying.
Ausubel, Novak, & Hanesian	1978	Self-consistent, enduring individual differences in cognitive organization and functioning
Gregorc	1979	Consists of distinctive behaviors which serve as indicators of how a person learns from and adapts to his environment
Brown & Mayden	1980	A set of factors, behaviours and attitudes that facilitate learning for an individual in a learning situation
Letteri	1980	Style of information processing, the storage and retrieval of information
Keefe	1982	Characteristic cognitive, affective, and psychological behaviors that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment
Garger & Guild	1984	Stable and pervasive characteristics of an individual, expressed through the interaction of one's behavior and personality as one approaches a learning task
Smith & Renzulli	1984	Range of instructional strategies through which students typically pursue the act of learning
Reid	1987	Cognitive, affective, and physiological traits that are relatively stable indicators of how learners perceive, interact with, and respond to the learning environment
Kelbeck	1989	Person's preferred approach to information processing. idea formation and decision making situations all depend on the compatibility with the personal profiles.
Debellow	1990	The way people absorb process and retain information.
Grasha	1990	Preferences of students on thoughts of students about classroom environments and class experiences
Pithers & Mason	1992	Relatively consistent pattern of perception interaction with and response to stimuli in a particular learning environment
Reiff	1992	A set of factors, behaviours and attitudes that facilitates learning for a student in a given situation.
R. Dunn & K. Dunn	1993	The way that the students begin to concentrate on process, internalise, remember new and difficult academic information
Sternberg	1994	refers to how people prefer to learn
Dunn, Dunn and Perrin	1994	The way in which each learner begins to concentrate on, process, and retain new and difficult information - that interaction occurs differently for each individual
James & Gardner	1995	Ways individual learner's react to overall learning environment make up the individual's learning style
Felder	1996	Habitual pattern or a preferred way of acquiring knowledge in doing something
Riding and Rayner	1998	An individual set of differences that not only include a stated personal preference for instruction or an association with a particular form of learning activity but also individual differences found in intellectual or personal psychology
Brown	2000	The manner in which individuals perceive and process information in learning situations.
Dunn, Beaudry, & Klavas	2002	Is a biologically and developmentally imposed set of personal characteristics…as individual as a signature
Felder & Spurlin	2005	Characteristic strengths and preferences in the ways learners take in and process information
Northey	2005	A preference for the method by which an individual learns something and how that individual remembers what has been learned
Becta	2006	A combination of the cognitive process, preference of mode of interaction, and strategies to attain information.

Learning Style Models

A detailed review of the reviewed literature made to arrive at the deduction that there are three types of learning style models that can be used to assess a person's learning style are instructional preference models, information-processing models, and personality models. Instructional models examine the attitudes, strategies, and habits of learners (Grasha & Riechmann, 1974; Dunn & Dunn, 1975; Friedman & Stitter, 1976; Hill, 1976; Renzulli & Smith, 1978; Canfield & Lafferty, 1980). These models also examine how people engage with their peers when they learn and because, it also known as social interaction models. Information-processing models examine the way a person remembers information, solves problem, senses, and thinks (Kolb, 1976; Reinert, 1976; Schmeck, Ribich & Ramainah, 1977; Gregorc, 1977; Hunt, 1978; Entwistle, 1979; Biggs, 1987). Personality models observe the way a person reacts and feels about different situations (Myers - Briggs, 1962). A summary of the learning styles obtained in literature review is given in Table 3.

Table 5

A Summary of the Learning Styles Obtained in Literature Review Categorised as Instructional Preference Learning Styles, Information Processing Learning Styles and Personality Model Learning Styles

Instructional Preference Model			
Author	**Year**	**Key Terms / Descripters**	**Measure**
Grasha & Riechmann	1974	Participant-avoidant collaborative-competitiveindependent-dependent	Student Learning Style Scales (SLSS)
Dunn & Dunn	1975	Environmental/preference-based Sociological /emotional/ Physical /psychological	Learning Style Inventory
Friedman & Stitter	1976		Instructional Preference Questionnaire

Hill	1976	Linguistic symbols / cultural determinants / modalities of inference / cultural determinants	Cognitive Style Profile
Renzulli & Smith	1978	Teaching styles and learning contexts	Learning Style Inventory
Canfield & Lafferty	1980	Conditions – content – modes – expectancy	Canfield Learning Style Inventory (CLSI)
		Information Processing Models	
Kolb,	1976	Accommodating – diverging – converging – assimilating styles	Learning Style Inventory (LSI)
Reinert	1976	Visualization / verbal symbols / Sounds /emotional feelings	Edmonds Learning Style Identification Exercise (ELSIE)
Schmeck *et al*	1977	Deep processing – shallow processing – elaborative processing –serial processing –holistic processing	Inventory of Learning Processes
Gregorc	1977	Concrete sequential/abstract random – abstract sequential/concrete random	Gregorc Mind Styles Delineator
Hunt	1978	Need for structure: conforming –dependent	Paragraph Completion Method
Entwistle	1979	Meaning orientation – reproducing orientation – achieving orientation – non-academic orientation – self-confidence	Approaches to Study Inventory (ASI)
Biggs	1987	Surface/deep achieving	Study Process Questionnaire
		Personality Models	
Myers-Briggs	1962	Perceiving/judging – sensing/ intuition – thinking/feeling – extraversion/introversion	Myers-Briggs Type Indicator (MBTI)

In addition to the above independently identified learning styles, Rayner and Riding (1997) categorization of learning styles models under three headings: Process-based, preference-based and cognitive skill-based models was also considered in detail. An understanding of some these models were helpful to have a conceptual outline of the construct learning style.

Reichmann and Grasha's (1974) Style of Learning Interaction Model

Riechmann and Grasha (1974) presented a social and affective perspective on patterns of preferred behaviour and attitude which support learning in an academic context. They identified three bipolar dimensions: avoidant/participant, competitive-collaborative and dependent/independent, which describes an individual's typical approach to the learning situation. Jonassen and Grabowski (1993) considered this model as social interaction scale and explained it in terms of three classroom dimensions: student attitudes towards learning; view of teachers and peers; and reaction to classroom procedure.

Independent learners prefer to think for themselves and are confident about their learning abilities. They prefer to work alone; learning content that they think is important (Grasha, 1996). Dependent learners show little intellectual curiosity and learn only what is required. They look to authority figures, teachers, and peers for specific guidelines on structure, support, and what to do (Grasha). Collaborative learners enjoy working with peers and teachers, and they believe they can learn by sharing ideas and talents (Grasha). Avoidant learners tend to be uninterested and/or overwhelmed by the learning situation. They are not enthusiastic and do not participate in the learning process. Participant learners are the "good citizens." They are eager to please and will do as much as is required to meet requirements. They enjoy most learning activities and are likely to participate actively in the learning process (Grasha). Competitive learners compete with their peers for grades

and like to be the centre of attention receiving recognition for their accomplishments (Grasha).

The construct is measured by completing the Student Learning Styles Scale (SLSS), which is a 90-item self-report inventory presented in two versions, one to assess class style and one to assess individual style and consists of six subscales reflecting dimensions of the learning style. Riechmann and Grasha (1974) expect style to change in different classes and for a different subject.

Ramirez & Castaneda's (1974) Child Rating Form

Ramirez and Castenada (1974) described learning style in connection with field-dependency or field-independency of cognitive style, and focuses mainly on cultural differences. The typical responses of individual students who demonstrated field-independence were identified positive because of its traits (detail oriented, independent and sequential) often rewarded in the school context. This model has a clear connection with Witkin's construct but significantly reflects the attempt to apply the cognition-centred model to the learning environment. The Child Rating Form was a direct observation tool measuring behaviour frequencies to be completed by a teacher, or can be completed by a student as a self-report questionnaire.

The Edmonds Learning Style Identification Exercise (ELSIE) (Reinert, 1976)

Reinert's (1976) model called as The Edmonds Learning Style Identification Exercise (ELSIE), aims to identify the individual's natural perceptual modality in a learning context. Reinert's work influenced both the development of the Dunn *et al. (*1989) model, as well as the work of Keefe (1987), in developing the NASSP Learning Style Profile (De Bello, 1990). The ELSE is composed of 50 one-word items which are used to characterize

the respondent's immediate reaction on four possible levels: visualization or creation of a mental picture; alphabetical letters in writing from; auditory; activity, an emotional or physical feeling about the word. The purpose of this assessment is to provide the teacher with information which will be used to work to the student's strengths or preferred mode of responding to learning stimuli (Rayner & Riding, 1997).

Honey & Mumford's (1986) Learning Style Questionnaire

Honey & Mumford's (1992) description and measurement of Learning Style Questionnaire is grounded in Kolb's experiential learning model. The LSQ is an 80 item self-report inventory based on Kolb's ELM, but devised to the practical application in management and industry.The four learning styles measured by the LSQ are activist (Kolb's active experimentation); reflector (Kolb's reflective observation); theorist (Kolb's abstract conceptualization); andpragmatist (Kolb's concrete experience).Individual's tendency towards a preferred learning style is indicated by their ratings of behavioural and preference situations (Cassidy, 2004).

Entwistle's (1979; 1981) Approaches to Study Inventory

Entwistle's study on style was based on the works of Marton and Saljo (1976). Entwistle, Hanley, and Hounsel (1979) developed an instrument for assessing learning style which focuses on the level of engagement or depth of processing applied during learning, and identified the duality of levels of processing in an approach to learning, which reflected either a surface or deep engagement with the task. Entwistle attempted to link instructional preference to information processing and proposed a model focus on four modes of the orientation of the learner: meaning orientation, reproducing orientation, achieving orientation and holistic orientation.

Entwistle (1981) developed an integrated conception of the learning process, which described a series of learner actions linked to specific learning style. They were deep (intention to understand, relating ideas, use of evidence, and active learning); surface (intention to reproduce, unrelated memorizing, passive learning, and fear of failure); strategic (study organization, time management, alertness to assessment demands, and intention to excel) ; and apathetic (lack of direction and lack of interest) (Cassidy, 2004).

The original 64 item ASI has go through a number of revisions and the revised ASI (RASI) is a 44 item self-report inventory of learning activities follows a Likert scale response format. The RASI identified six approaches to learning: deep; surface; strategic; lack of direction; academic self-confidence; and metacognitive awareness of studying (Cassidy, 2004).

Biggs (1978, 1985) Study Process Questionnaire

Biggs (1985) extended Entwistle's model to develop a new measure of learning strategy, and incorporated an extended motivational dimension defined as intrinsic, extrinsic and achievement orientation. Biggs study process questionnaire measure consists of both a strategic dimension (deep/surface) and a motivational dimension (deep/surface) (Cassidy, 2004). The SPQ originally consisted of a 42 item self-report questionnaire, and the revised two- factor SPQ has 20 items which provides the score in relation to the dimensions of strategy and motivation. Entwistle subsequently developed an empirical model of these study processes identified as underlying serialist-holist-versatile learning (Entwistle, 1981).

Kolb’s Experiential Learning Model

Kolb’s (1984) experiential learning model is a process based model of learning style construct, consists of four learning orientations and two bipolar

dimensions. The four stages of ELM as described as: concrete experience (CE; experiencing) which favours experiential learning; abstract conceptualization (AC; thinking) where there is preference for conceptual and analytical thinking in order to achieve understanding; active experimentation (AE; doing) involving active trial and error learning; and reflective observation (RO; reflecting) where extensive consideration is given to the task and potential solution for there is any attempt at action (Cassidy, 2004).

The four learning orientations form two bipolar dimensions of learning. The first dimension is prehension i.e. grasping of information from experience, and is constituted by the bipolar orientation CE-AC. The second dimension is transformation, the processing of grasped information, and is constituted by the remaining orientations AE-RO. The relative positioning along these dimensions define four types of learning as convergence, divergence, assimilation and accommodation (Kolb, 1984).

The divergent type learners combine reflective observation with concrete experience who often described as creative learners because they personally engaged in multiple potential strategies for learning and problem solving. The convergent type learners use abstract conceptualization to drive active experimentation. Action is based in abstract understanding of task and, need to follow detailed, sequential steps in thinking in a learning activity. The assimilator type learners favour abstract conceptualization and reflective observation (Kolb, 1984). They refine abstract theories rather than develop workable strategies or solutions, and follows in pragmatic problem solving in a learning activity. The accommodator type learners use active experimentation and concrete experience. These learners have clear preference for hands-on learning, and to involve in risk-taking, and flexibility in a learning activity (Kolb, 1984).

The Learning Style Inventory originally developed as a 9 item self-reporting scale and the revised LSI consists of a 12 item self-report questionnaire. Respondents are required to each of the item to rank four sentence ending corresponding to each of the four learning styles. Two combination scores are measured, reflecting positions along each of the learning style dimensions. The first is the AC-CE continuum, which shows the degree to which the individual's style is biased toward abstraction or concreteness. The second continuum, RO-AE, shows the degree to which the individual's style is biased towards reflection or activity.

The experiential learning theory (Kolb, 1984) goes through four-stage cycle includes (1) a concrete experience which is the basis for (2) observation and reflection which in turn leads to (3) a theory, from which implications for action can be determined and finally (4) the theory serves as a guide to create new experiences (Zanich, 1991).

Schmeck's (1977) Inventory of Learning Process

Schmeck *et al* (1977) developed learning processes style, by put forwarding a theory that the quality of thinking during learning which affects the learning outcome. This quality of thinking affects the distinctiveness, transferability and durability of memories that result from the learning event (Schmeck, 1988). The ILP consisted of four subscales, comprising synthesis-analysis, elaborative processing, fact retention and study methods (Rayner & Riding, 1997).The ILP was originally a 62 item self-report inventory with four subscales and the revised version (ILP-R) has 160 items and seven subscales.

Dunn *et al.*'s Learning Style Inventory (LSI)

Dunn and Dunn and Price (1989) defined learning style as the manner in which different elements from five basic stimuli affect an individual's

ability to perceive, interact with and respond to the learning environment (Dunn *et al.*, 1989). This learning style is a good example of a construct which more properly describes a learning repertoire rather than a style, and it is a repertoire chiefly made up of learning preferences (Rayner & Riding, 1997). The learning style elements identified in this construct are: environmental stimulus (light, sound, temperature, design); emotional stimulus (structure, persistence, motivation, responsibility); sociological stimulus (pairs, peers, adults, self, group); physical stimulus (perceptual strengths: auditory, visual, tactile, kinaesthetic, mobility, intake, and time of day); and psychological stimulus (global-analytic, impulsive-reflective and cerebral dominance).

The Learning Styles Inventory comprises a 104-item self-reporting questionnaire employing a three-choice Likert scale—true, false and unsure. There are several versions of this instrument aimed at the primary and secondary age range. A third version, developed for use with adults, is called the Productivity Environmental Preference Survey (PEPS) (Rayner & Riding, 1997).

Hill's (1976) Cognitive Style Interest Inventory and Style Mapping

Hill (1976) attempted to establish perceptual modality (auditory/visual), modalities of inference (e.g. critical thinking and hypothesis testing) , and cultural determinants, in order to integrate learning style with curriculum design (Rayner & Riding1997). The system was called Cognitive Style Mapping and reflected in the principles of individualised education. The Cognitive Style Interest Inventory is a 216 item self-report questionnaire designed to assess educational cognitive style using three categories: symbols and their meaning (perceptual modality); modalities of inference and cultural determinant. In addition, there is an interview component to the measure (Cassidy, 2004).

Letteri's Learner Types (Cognitive Style Delineators)

Letteri (1980) viewed learning essentially as an exercise in information processing involving the storage and retrieval of information. Letteri integrated the work of several models of cognitive style to create a combined assessment of individual skills on a bi-polar continuum (Rayner & Riding1997).The model identified three type of learner: Type 1 were characterized by reflective, analytical dimensions of learning style; Type 3 were characterized by impulsive, global dimensions of style who were typically non-focused in their learning; Type 2 falls midway between Type1 and Type 3, reflecting a central position in the continuum. Letteri's instrument represents a number of existing cognitive dimensions, including field-independence/field-dependence, impulsivity-reflexivity, scanning/ focusing and levelling /sharpening, which are assessed through a series of bipolar continuums (Cassidy, 2004).These bipolar extremes correspond to either wholist (global) or analyst characteristics.

Keefe and Monk's (1986) Learning Style Profile

Keefe and Monk's (1986) learning style construct describes 24 key elements in learning style, which are grouped together into three areas: the first is cognitive skills, including information processing and memory; the second is perceptual response to visual and auditory stimuli and, the third is study and instructional preference, including motivation and environmental preferences. The rationale for operationalization of the construct is based upon the premise that cognitive skills development is a prerequisite for effective learning. The LSP is a 126 item assessment tool for secondary students which include self-report items and cognitive tasks (Cassidy, 2004).

Gregorc (1982) Style Delineator

Gregorc (1982) developed The Gregorc Style Delineator, a self-analysis tool designed for adults, that identifies an individual's mediation abilities or the channels used to receive and express information. The outward appearance of one's "mediation abilities" is the individual's "style" (Gregorc, 1982). The Gregorc Style Delineator is used to determine a person's style by assessing two types of mediation abilities: perception and ordering. Perceptual ability is determined by two qualities: abstractness and concreteness. Whereas the qualities that control one's ordering abilities are sequence and randomness. Each mind has all four of these qualities, but we use them with different intensity. These qualities determine the person's "qualitative orientation to life" (Gregorc, 1982).

The four channels determined by Gregorc are: (1) concrete/sequential, (2) abstract/sequential, (3) abstract/random, and (4) concrete/random. The evaluation instrument is used to determine a person's most dominant mediation qualities. The concrete/sequential learner is product-oriented, not people-oriented, and can be characterized as ordered and objective (Gregorc, 1984). The abstract/sequential learner is evaluative, logical and rational. The abstract/random learner is people-oriented, not product-oriented, and can be characterized as lively and spontaneous (Gregorc, 1984). The concrete/random learner is perceptive and likes to experiment and take risks (Gregorc, 1984).

Myers Briggs Type Indicator (MBTI)

The Myers Briggs Type Indicator (MBTI), one of the most popular learning style assessments which are based on psychological type theory of Jung. There are 16 learning styles categorized in the Myers- Briggs Type Indicator, which are a combination of the following four preferences: (1)

extraversion versus introversion, (2) sensing versus intuition, (3) thinking versus feeling, and (4) judging versus perceptive. These preferences are determined by a 126 item testing instrument (Myers, 1962).

The extroverts prefer to outer world. They are action-oriented and get recharged by being around people. They learn by teaching others and especially like working in groups. The introverts prefer to inner world. Faculty can help introverts in their learning process by teaching students how to categorize and link pieces of information through flowcharts, mapping, and compare/contrast tables (Myers, 1962).

The sensing type gathers data by means of the senses and relies on factual information. They are detail oriented and prefer linear, organized, and structured lectures. When teaching sensing students, present a problem and engage their curiosity. The intuitive type focuses on inferences and implications. They are able to see patterns and relationships to pieces of information. The sensing student will identify the facts of the exercise and the intuitive student will show how the elements are integrated into a framework (Myers, 1962).

The thinking type use logic while taking decisions and process information logically and through analysis. The feeler type makes decisions on what they perceive correct and rely on human values to make decisions. The judging type lives in an orderly world and they are decisive, self-disciplined learners (Myers, 1962). The perceiving type lives in a spontaneous or flexible world. These students tend to wait until the last minute to get their assignments in (Brightman, 2004).

Curry's Onion Model

Using an onion metaphor to illustrate inner and outer layer of the construct, Curry's (1983, 1987) proposed a layer- like model of learning

behaviour. Initially having three layers model, Curry later added social interaction as the fourth model. The outer most layer examines the instructional preference, which refers to the individual's preferred choice of learning environment. This layer is considered to be the most observable, least stable and most easily influenced. Influences include learning environments, learner expectations, teacher expectations and other external features (Curry, 1983).The Learning Preference Inventory (Rezler & Rezmovic, 1981) is an instrument measuring instructional preference (Cassidy, 2004).

Social interaction is the next layer and relates to the individuals preference for social interaction during learning. Reichmann and Grasha (1974)'s Student Learning Style Scale (SLSS) defines learners according to the level of social interaction. The third and most stable layer is the information processing style and is described as individual's intellectual approach to the processing information (Cassidy, 2004). The models associated with this layer are Learning Style Inventory (Kolb, 1976)), Cognitive Preference Inventory (Tamir & Cohen, 1977) and Inventory of Learning Processes (Schmeck *et al*, 1977) (Cassidy, 2004).

The final layer is cognitive personality style. This appears the most robust component, described as "relatively permanent personality dimension…apparent only when an individual's behaviour is observed across many different learning situations" (Riding & Cheema, 1991).Associated instruments for the measurement of this layer are the Embedded Figure Test (Witkin, 1962), Myers Briggs Type Indicator, (Myers, 1962) and Matching Familiar Figure Test (Kagan, 1965) (Cassidy, 2004).

Felder and Silverman's Learning Styles

According to Felder and Silverman (1988), a learning-style model classifies students according to where they fit on a number of scales pertaining to the ways they receive and process information.

The model classifies students as having preferences for one category based on each of the four dimensions: sensing/intuitive; visual/verbal; active/reflective and sequential/global. Sensing type learners are concrete thinkers, practical, oriented towards facts and procedures. Intuitive type learners are abstract thinkers, innovative, oriented towards theories and underlying meanings (Felder & Spurlin, 2005). Visual type learners prefer visual representation of presented material, such as pictures, diagrams and flow charts. The verbal learners prefer written and spoken explanations. The active learners learn by trying things out, prefer working alone or with a single familiar partner. The sequential learners follow linear thinking process and learn in small incremental steps. The global type applies holistic thinking process, learn in large heaps (Felder & Spurlin, 2005).

The Index of Learning Styles (ILS), developed by Felder and Silverman, is a 44-item questionnaire for identifying the learning styles according to Felder Silverman Learning Style Model (FSLSM). Each learner has a personal preference for each dimension. Each learning style dimension has associated with 11 forced-choice items, with each option (a or b) corresponding to one or the other (e.g., active or reflective) category of the dimension (Felder & Spurlin, 2005).

Measurement of Learning Styles

The preferred way in which an individual approaches a task or learning situation has been characterized in several different ways based on variety of theoretical models (Cassidy, 2004).Curry's (1987) review is concerned with

the psychometric properties of measures of learning style and examines 21 measures of style, focusing on issues of reliability and validity, issues which continue to be raised as a matter of concern in the area (Rayner & Riding, 1997).

Curry (1991) identifies three areas of continuing concern for the operationalization of learning style: (1) confusion in definitions; (2) weaknesses in reliability and validity of measurement; and (3) identification of the most style relevant characteristics in learners and instructional settings. Among the exhaustive list of instruments without adequate empirical base and absence of reliability and validity, the operationalization of learning styles is a complicated task.

Gregorc (1982) Style Delineator is a 40 item self-report inventory involving the rank ordering of sets of words. It describes four distinctive and observable behaviours: abstract, concrete, random and sequential. A combination of these tendencies is indicative of individual style (Cassidy, 2004).

Witkin's field independence and field dependence assess individual dependency on a perceptual field when analyzing a structure or form which is part of the field. (Witkin & Goodenough, 1981).The Embedded Figure Test (EFT) involving the disembedding of a shape from its surrounding field, have been used to measure this construct.

Kagan's impulsivity-reflexivity is measured using the Matching Familiar Figure Test (MFFT) which requires familiar line drawing of objects to be matched against several possibilities (Cassidy, 2004).Pask and Scott (1972) devised a series of problem solving tasks which allowed individuals to adopt either a step-by-step (serialists) or global approach (wholists) to solving the task (Cassidy, 2004).

Kaufman and Martinsen (1991) measured A-E style by using a 32 item self-report questionnaire, for identifying assimilator-explorer cognitive style. Kirton (1994) assessed adaption-innovation dimension (A-I), using the Kirton Adapter-Innovator Inventory (KAI), a 32 item self-report instrument, which is in frequent use in the field of management and training. The Cognitive Style Index developed by Allinson and Hayes (1996) is a 38 item self-report questionnaire which provides a score suggestive of either an intuitive or analytic nature (Cassidy, 2004).

Kolb's Experiential Learning Model (ELM) was assessed by using a 9 item self-report scale (Kolb, 1976).The revised LSI (Kolb, 1985) is a 12 item self-report questionnaire. Kolb's emphasis on experiential learning and developmental nature of learning suggests a potential for change in style (Rayner & Riding, 1997). The ELM forms the basis of the work of Honey and Mumford (1986) in the field of learning style and management and the development of their questionnaire (Cassidy, 2004).

Vermunt (1992) developed Learning Style Inventory (LSI) comprised of 20 subscales and 120 items relating to study strategies, motives and mental models, through which derive four learning styles: undirected; reproduction; application directed and meaning directed. Entwistle *et al*. (1979)developed an Approach to Study Inventory (ASI).The original 64 item ASI has undergone a number of revisions, and the revised ASI (RASI) is a 44 item self-report inventory of learning activities which follows Likert scale response format. Biggs' Study Process Questionnaire (SPQ) originally a 42 item self-report questionnaire and the revised SPQ has 20 item which gives score concerning with strategy and motive.

Schmeck *et al*. (1977) developed Inventory of Learning Process, having originally a 62 item self-report inventory with four subscales: synthesis-analysis; elaborative processing; fact retention and study methods

(Rayner & Riding, 1997).The revised version (ILR-P) has 160 items and seven subscales. Hunt *et al.* (1978) developed Conceptual Level Model which is assessed by administering the Paragraph Completion Test that requires individuals to complete and elaborate on six incomplete sentences (Cassidy, 2004).

Dunn et al (1989) LSI is a 100 item self-report questionnaire asking individuals to respond to items relating to the key factors of construct viz., environmental, emotional, sociological, physical and psychological. Curry's (1987) review of different learning / cognitive style models reports that Dunn's LSI as having one of the highest reliability and validity ratings (Cassidy, 2004).

Riechmann and Grasha (1974) developed style of learning inter action model called as The Student Learning Style Scale (SLSS), is a 90 item scale presented in two versions namely general class form and specific class form. Rayner and Riding (1997) identified the similarity between SLSS model and the model proposed by Dunn *et al (*1989) because of the focus on learning preferences.

Reinhart (1976) developed the Edmonds Learning Style Identification Exercise (ELSIE) aims to provide the teacher with information which will be used to work to the student's strengths of preferred mode of responding to learning stimuli (Rayner & Riding, 1997). The instrument consisted of 50 one-word items to assess response in terms of imagery, verbalisation, sound and affect. Similarities between the ELSIE and several other models including those of Dunn et al. (1989), Hill (1976) and Keefe and Monks (1986) have been noted (Cassidy, 2004).

Hill's (1976) Cognitive style Interest Inventory is a 216 item self-report questionnaire designed to assess educational cognitive style. Letteri's

(1980) learner types assessed a number of existing cognitive dimensions, to identify wholist and analytic components. Keefe and Monks (1986) developed a learning style profile consisted of 126 item assessment tool for secondary students including self-report items and cognitive tasks. The LSP has been found to correlate significantly with other instruments, notably Dunn *et al*'s (1989) LSI and Reinert's (1976) ELISIE (Curry, 1987;Keefe & Monks, 1986).

Conceptual Overview of Big Five Personality Traits

Human Personality is generally assumed to be a psychological system of 'interdependent' parts that helps human beings deal with the complex social environment (Egeren, 2009).The five-factor model (FFM) is a leading approach for representing the human trait structure today. This model asserts that five basic factors describe most personality traits: Neuroticism, Openness to Experience, Extraversion, Agreeableness, and Conscientiousness. Researchers have used the model to predict individual differences in numerous settings: clinical (Costa, 1991), industrial and organizational (Barrick & Mount, 1991, 1996; Barry & Stewart, 1997; Mount & Barrick, 1995), counseling (McCrae & Costa, 1991), and more.

Traits are "dimensions of individual differences in tendencies to show consistent patterns of thoughts, feelings and actions" (McCrae & Costa, 1990). Therefore, traits are enduring dispositions and traits describe 'what people are like' rather than the intentions behind their behaviour (Roccas et al, 2002).

The FFM was derived by inference from empirical analyses rather than deduced from theory. Factor analyses of descriptions of self and of others, using trait adjectives from the English lexicon (Goldberg, 1990; John, 1990),

and of the structure of personality questionnaires (Costa & McCrae, 1988) yielded five robust factors (Roccas *et al*, 2002).

The Development of Big Five Personality Traits

Beginning with Klages (1926), Baumgarten (1933), and Allport and Odbert (1936), various psychologists have turned to the natural language as a source of attributes for a scientific taxonomy. The lexical hypothesis posits that most of the socially relevant and salient personality characteristics have become encoded in the natural language (Allport, 1937).

Allport and Odbert (1936) conducted a seminal lexical study of the personality-relevant terms in an unabridged English dictionary. They included all the terms that could be used to "distinguish the behaviour of one human being from that of another" (Allport & Odbert, 1936). They extracted 17, 953 personality describing words. At the time, the staggering size of this list seemed "like a semantic nightmare" (Allport, 1937) and reduced this gigantic list to 4, 504 adjectives which they believed were descriptive of observable and relatively permanent traits. Allport and Odbert (1936) identified four major categories. The first category included personality traits (e.g., sociable, aggressive, and fearful), which they defined as "generalized and personalized determining tendencies--consistent and stable modes of an individual's adjustment to his environment" (Allport and Odbert, 1936) .The second category included temporary states, moods, and activities, such as afraid, rejoicing, and elated (Allport & Odbert, 1936).The third category consisted of highly evaluative judgments of personal conduct and reputation, such as excellent, worthy, average, and irritating (Allport & Odbert, 1936). The last category included physical characteristics, capacities and talents, terms of doubtful relevance to personality, and terms that could not be assigned to any of the other three categories (Allport & Odbert, 1936).

Norman (1967) subsequently elaborated Allport and Odbert's initial classification and divided the domain into seven content categories: stable "biophysical" traits; temporary states; activities; social roles; social effects; evaluative terms; anatomical and physical terms; as well as ambiguous and obscure terms not considered useful for personality descriptive purposes (John & Srivasthava, 1999). Both Allport and Odbert (1936) and Norman (1967) classified the terms gathered from the dictionary into mutually exclusive categories.

Cattell (1943) used the Allport and Odbert list as a starting point for his multidimensional model of personality structure. Because the size of that list was too overwhelming for research purposes, Cattell (1943) began with the subset of 4, 500 trait terms. Using both semantic and empirical clustering procedures, Cattell reduced the 4, 500 trait terms to a mere 35 variables. Using this small set of variables, Cattell conducted several oblique factor analyses and concluded that he had identified 12 personality factors, which eventually became part of his 16 Personality Factors (16PF) questionnaire (Cattell, Eber, & Tatsuoka, 1970).

The Big Five in Personality Questionnaires

Beyond the lexical tradition, the need for an integrative framework became more pressing among researchers who studied personality with Big Five questionnaire scales. Joint factor analyses of questionnaires developed by different investigators had shown that two broad dimensions, Extraversion and Neuroticism, appear in one form or another in most personality inventories (John & Srivasthava, 1999). Eysenck (1991) observed that "Where we have literally hundreds of inventories incorporating thousands of traits, largely overlapping but also containing specific variance, each empirical finding is strictly speaking only relevant to a specific trait . . . This is not the way to build a unified scientific discipline"

Costa and McCrae's Research

Costa and McCrae developed the NEO Personality Inventory which eventually published in 1985, to measure three broad personality dimensions: Neuroticism, Extraversion, and Openness to experience. Costa and McCrae (1976) had begun their work with cluster analyses of the 16PF (Cattell *et al*., 1970) Their analyses again yielded the ubiquitous Extraversion and Neuroticism dimensions, but also convinced Costa and McCrae of the importance of Openness, which originated primary factors of Cattell.

In 1983 Costa and McCrae realized that their NEO system closely resembled three of the Big Five factors, but did not encompass traits in the Agreeableness and Conscientiousness domains. They, therefore, extended their model with preliminary scales measuring Agreeableness and Conscientiousness.

The Revised NEO Personality Inventory

The initial NEO Personality Inventory (Costa & McCrae, 1985) included scales to measure the facets of Neuroticism, Extraversion, and Openness but did not include facet scales for the newly added Agreeableness and Conscientiousness. In 1992, Costa and McCrae published the 240-item NEO Personality Inventory, Revised (NEO PI-R; Costa & McCrae, 1992) which permits differentiated measurement of each Big Five dimension in terms of six more specific facets per factor (Costa & McCrae, 1995).

The NEO PI-R was developed in samples of middle-aged and older adults, using both factor analytic and multi-method validation procedures of test construction (John & Srivasthava, 1999).The scales have shown substantial internal consistency, temporal stability, and convergent and discriminant validity against spouse and peer ratings (Costa & McCrae, 1992; McCrae & Costa, 1990).

For many research applications, the NEO PI-R is rather lengthy. To provide a shorter measure, Costa and McCrae (1992) developed the 60-item NEO-FFI, an abbreviated version based on an item factor analysis of the 1985 version of the NEO PI (Costa & McCrae, 1985). The 12-item scales of the FFI include the items that loaded most highly on each of the five factors in that analysis. The NEO-FFI scales are substantially correlated with the NEO PI-R scales, suggesting that they inherit a substantial portion of the validity of the longer scales (John & Srivasthava, 1999).

Big Five Factors

There are five broad dimensions of personality namely: Extraversion; Agreeableness; Conscientiousness; Neuroticism and Openness to experience. Each dimension has six facets.

Table 6

Facets of Five Personality Traits

Extraversion	**Openness**	**Agreeableness**	**Conscientiousness**	**Neurotism**
Warmth	Fantasy	Trust	Competence	Anxiety
Gregariousness	Aesthetics	Straight forwardness	Order	Angry hostility
Assertiveness	Feelings	Altruism	Dutifulness	Depression
Activity	Actions	Compliance	Achievement striving	Self-consciousness
Excitement seeking	Ideas	Modesty	Self-discipline	Impulsiveness
Positive emotions	Values	Tender mindedness	Deliberation	Vulnerability

Extraversion

Extraversion refers to number of relationships with which one is comfortable. Individuals who score high on Extraversion tend to be sociable,

talkative, assertive, and active; those who score low tend to be retiring, reserved, and cautious. Extraversion is compatible with pursuing excitement, novelty, and challenge, the goals of stimulation values. Costa & McCrae (1992) developed six facets of extraversion: warmth; gregariousness; assertiveness; activity; excitement seeking and positive emotions. This trait is marked by pronounced engagement with external world. They tend to be enthusiastic, action oriented individuals and enjoy being with people and often perceived as full of energy.

Agreeableness

Agreeableness is a tendency to be compassionate and cooperative rather than suspicious and antagonistic towards others. Individuals who score high on Agreeableness tend to be good-natured, compliant, modest, gentle, and cooperative. Individuals who score low on this dimension tend to be irritable, ruthless, suspicious, and inflexible. The facets of agreeableness are: trust; straight forwardness; altruism; compliance; modesty and tender mindedness (Costa & McCrae, 1992). Agreeable people also have an optimistic view of human nature.

Conscientiousness

Conscientiousness is a tendency to show self-discipline, act dutifully, and aim for achievement. The trait shows a preference for planned rather than spontaneous behaviour. Individuals high in Conscientiousness tend to be careful, thorough, responsible, organized, and scrupulous. Those low on this dimension tend to be irresponsible, disorganized, and unscrupulous. McCrae and John (1992) identify two distinct aspects of Conscientiousness, a proactive aspect (will to achieve) and an inhibitive aspect (holding impulsive behaviour in check).Costa & McCrae (1992) developed six facets of conscientiousness : competence; order; dutifulness; achievement striving; self-discipline and deliberation.

Neuroticism

Neuroticism is the tendency to experience negative emotions, such as anger, anxiety, or depression. It simply refers to emotional instability. Individuals high on Neuroticism tend to be anxious, depressed, angry, and insecure. Those low on Neuroticism tend to be calm, poised, and emotionally stable. Costa & McCrae (1992) developed the six facets of neuroticism: anxiety; angry hostility; depression; self-consciousness; impulsiveness and vulnerability. The neurotic people are more likely to interpret ordinary situations as threatening, and minor frustrations as hopelessly difficult.

Openness to Experience

Openness to Experience is a general appreciation for art, emotion, adventure, unusual ideas, imagination, curiosity, and variety of experience. Individuals who score high on this dimension tend to be intellectual, imaginative, sensitive, and open-minded. Those who score low tend to be down-to-earth, insensitive, and conventional. The facets of Openness to Experience include fantasy, aesthetics, feelings, actions, ideas and values.

Measurement Instruments of Big Five Personality Traits

The instruments used to measure big five traits include Goldberg's (1992) TDA, Costa and McCrae's (1992) NEO questionnaires and John et al.'s (1991) BFI. In addition, a variety of other measures are available to assess the Big Five in English and most of them were developed for specific research applications (John & Srivasthava, 1999). Digman (1989) constructed several different adjective sets to study teacher ratings of personality in children and adolescents. Loehlin, McCrae, Costa, and John (1998) used Big Five scales specifically constructed from the California Psychological Inventory (Gough, 1987) and the Adjective Check List (Gough & Heilbrun, 1987). Another broad-band personality inventory that provides scores for the

Big Five is the Hogan Personality Inventory (Hogan, 1986). Goldberg's (1992) 100-item TDA is the most commonly used measure consisting of single adjectives. The Revised NEO Personality Inventory (NEO PI-R) consists of 240-item measure of the Five Factor Model: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience, along with facets of each trait (Costa & McCrae, 1992). The short version of the NEO-Five Factor Inventory (NEO-FFI) has 60 items (12 items per domain).

Studies on Teaching Styles and Influences *on* and *of* Teaching Styles

Previous studies on teaching style were considered with intention to improve the grasp of the area of study. Review was directed by questions like what are the factors effect teaching style, in which of the samples the studies on teaching styles were conducted, what are the major present trends in studying teaching style, tools and techniques used for quantifying the different types of styles in teaching, how much attention this variable obtained in India and abroad and what are the major findings of the study.

Hinely, Galloway, Coody and Sandefur (1966) conducted an exploratory study of teaching styles among student teachers. The primary objective of the study was to investigate the relationships among selected personality and achievement predictors and teaching style. The research instrument used in this study was a 24 item checklist that purported to categorize teachers according to three basic teaching styles (systematic, humanistic, and creative). The instrument consisted of 24 adjectives, eight related to systematic behaviour, eight related to humanistic behaviour, and eight related to creative behaviour. The college coordinator checked the teacher on a scale from one to seven on each of these adjectives. There were no significant differences between the general and systematic teaching styles in grade point averages, college coordinators ratings or student teaching

grades. The creative teachers were rated significantly higher by their college coordinators and received a significantly higher grade in student teaching than did the humanistic teachers.

Tuckman and Fabian (1977) conducted a study which examined the teaching styles of vocational teachers who were judged or rated as either of high or low teaching competence by their supervisors with the Tuckman Teacher Feedback Form (TTFF). A correlation of 0.68 was obtained between scores of organized demeanor on the TTFF and ratings on the Pedagogic Competency Instrument (Peda Comp) as compared to correlations less than half that size for the other three teaching style (creativity, dynamism and warmth and acceptance) dimensions.

Raina and Vats (1979) conducted a study on creativity, teaching style and pupil control, with the assumption of more creative teachers would have a teaching style which favours creativity and would be more humanistic in their pupil control orientation in comparison to low creativity teachers. Samples selected were 60 teacher educators from India. It was found that there are no significant sex differences on teaching style, creativity and pupil control. However, it was found that teachers with more years of experience have teaching style favouring creativity.

O'Sullivan (1980) studied about socialization and teaching style in an Irish cultural context. Twenty one primary schools serving predominantly middle and working class areas Cork city were selected. Social and geographical background, age, sex, personal status, and mobility perceptions were considered as a source of personal socialization. Professional socialization involved qualifications, teaching experience, reading and attending meetings and conferences on educational topics. School type, management type, socio-economic character, grade level taught, class size, number of years teaching present group, involvement in extracurricular

activities and social contact with parents were included as sources of contextual socialization. Five dimensions of teaching styles (pupil-centeredness, cooperative/creative emphasis, discovery learning, and group work and curriculum integration) were subjected to ANOVA. First dimension teachers were predominantly working class schools very much involved in extracurricular activities. In discovery learning, female teachers less than 30 years of age, had attended more meetings or conferences on educational topics and scored highest in their reported use of group work, the fourth factor. Curriculum integration was highest for female teachers. With regard to socio-economic background, teachers from farming, professional or skilled manual worker background scored highest in the curriculum integration.

Lapides (1980) explored two approaches to teaching styles. The first is a static approach borrowed from management research and organizational development practice. In this approach teaching styles were derived from Maslow's hierarchy of needs. They were seen as the interpersonal styles of behaviour with others, which grow out of people's needs. Seven teaching styles were identified and described. The second approach, in contrast with the life-style approach, is based on the assumption that teachers can be trained in alternative styles. Mosston believes that everyone can change through learning and that teaching style is a learned characteristic. Seven styles from command to discovery have been identified and described.

Wetzel, Potter and O’Toole (1982) studied on the influence of learning and teaching styles on student attitudes and achievement in the Introductory Economics Course. The study followed case study method. The data for this study were collected from the first semester Economics students, and administered a test of economics understanding at the first meeting of the class, and completed three questionnaires. One was attitudinal questionnaire used to measure the students' initial feelings toward economics and its study.

Second for identifying learning style and third for demographic information such as age, gender, race, major, reason for taking the course, grade expected, credit hours, working hours, and economics preparation in high school. In regression analysis, four variables were significant at the 5% level when the post-TUCE was used as the dependent variable: (1) independent teaching style (2) pre-TUCE (Test of Understanding in College Economics) score, (3) independent learning style, and (4) pre-course attitude toward economics. The first three variables entered the regression with positive coefficients, but the pre-course attitude score was inversely related to post-TUCEs core.

Nelson and Ratzlaff (1983) conducted a study on arousal, stimulation seeking, and teaching-style preference. In this study, the Teaching-style preference was examined as a function of individual differences in physiological arousal and stimulation seeking. Twenty-nine Canadian school teachers participated and completed the Sensation Seeking Scale, the Two-Flash Threshold (TFT) measure of trait arousal and a teacher questionnaire designed to measure teaching-style preference from a range of traditional or formal teaching style to open or informal teaching style. A statistically significant correlation between the TFT and the teacher questionnaire indicated that teachers identified as low arousal tended to prefer a traditional or formal teaching style and those identified as high arousal tended to prefer an open or informal style of teaching.

O'Hagan and Robertson (1984) studied primary school children's preferences concerning teachers and teaching methods. A questionnaire administered to examine preferences concerning teachers and teaching methods was completed by 54 boys and 54 girls attending six primary schools. These pupils were asked to rank, in order of preference, six items on four separate areas namely personal qualities of teacher, classroom organization, discipline and teaching styles. Calculations using Kendall’s

coefficient of concordance indicated that in each area there was a significant degree of association. Sex differences were most obvious with regard to discipline.

Schwartz, Merten and Bursik, (1987) examined the cultural significance of three teaching styles (Impersonal, Non-personal, and Personal) in a suburban middle-class junior high school. These three teaching styles reflect contrasting resolutions of the tension between the performance values of the school and the variable nature of early-adolescent development. The data for the study is based through open-ended ethnographic interviews with 28 seventh- and eighth-grade teachers at the Cronkite Junior High School. Teachers who adopt Non-personal teaching style emphasize the role aspects of teaching in their interaction with students. They tend to perceive pupils in their classroom as being students rather than as being early adolescents. A core feature of the personal style is the mutuality or reciprocity between students and teacher. Impersonal teacher refuses to recognize the distinctively early-adolescent aspects of classroom behaviour. The findings were there are significant differences between the personal and non-personal styles in junior high school. However, the most radical separation between teaching styles occurs between the commitment of the non-personal and personal styles to achievement and the commitment of the impersonal style to performance.

Galbraith and Sanders (1987) examined the relationship of perceptual learning style and teaching style of 138 junior college educators. The Perceptual Learning Style Inventory developed by James and Galbraith (1984) was used to determine learning style preference and Teaching Style Inventory also used. Findings indicated that junior college educators tend to teach the way they prefer to learn. The educational degree categories of associate, bachelors, masters and doctorate indicated that a significant

relationship existed in the way they perceived to learn and the teaching style utilized.

Evertson and Weade (1989) conducted a study on classroom management and teaching style. Stability and variability in teaching styles were examined for one effective and one less effective junior high English teacher selected on the basis of extreme differences in classroom management effectiveness and student achievement. By using sociolinguistic/ethnographic techniques, a sample of 3-4 classroom lessons for each teacher was analyzed. Comparisons revealed stability for both teachers in ways of eliciting student participation. Variations in the effective teaching style were associated with variations in academic content and level of difficulty of content. Moreover in the case of less effective classroom, differences in style occurred when the teacher's procedural expectations for students were not clear.

Carter (1989) studied cognitive interactions and teaching style in social studies classrooms. The 13 cognitive behaviours incorporated into the SSLOS were derived from the substantive and process elements of social studies which typically represent the types of intellectual transactions featured in social studies classrooms. Data were collected from 40 teacher class units selected from metropolitan senior high schools in the public education sector. Participating social studies teachers all taught the subject across Grades 8, 9 and 10 as well as a specialist area of either history, geography, economics or politics in the senior school (Years 11 and 12).Three types of social science teachers derived. The typology consisted of social scientist, knowledge transmitter, and reflective thinker. The Social Scientist has clear characteristics in common with a conception of social studies taught as social science. The Knowledge Transmitter considered social studies as consisting of a fixed body of content to be transmitted in order to make an individual socially literate. The Reflective Thinker focused on interactions requiring

speculation, decision-making and the probing of issues of current concern to pupils and the community and this was the least popular approach for the sample studied.

Brew and Wright (1990) studied on the changing teaching styles in distance education system. The sample selected for the study were 11 tutor counsellors in the British Open University for interview, to ascertain how they responded to the idea of using a facilitative teaching style in their tutorials. Their responses have been analyzed by a systems model of the tutorial process which indicates the extent to which they possessed a coherent framework, appropriate for teaching in a distance education teaching system. The interviews revealed factors which have echoes in student learning research and which, taken together, offer a tentative explanation of why some tutor counsellors were more amenable to changing their teaching styles than others. Therefore, changing teaching style may mean radically changing the way we perceive certain aspects of interpersonal relations and encounters, how we perceive ourselves, and so on.

Seevers and Clark (1993) conducted a study on factors related to teaching style preferences of Ohio Cooperative Extension Service Faculty and Program Staff. The participants were 454 OCES faculty and program staff and administered Principles of Adult Learning Scale (PALS) along with two additional measurements predictive of teaching behaviour; sensitivity and inclusion. The study found that OCES educators appear to have limited knowledge of adult education principles and practice and that the findings of two assessment instruments were not correlated in any practically significant way.

Karsenti and Thibert (1994) conducted a study to investigate the relationship between teaching style and within-term changes in the motivation of two year college students. Academic Motivation Scale was administered to

1597 female and 837 male students at junior college at the beginning of the term and three months later. Teaching style was measured using the Teaching Style Inventory. Five teaching styles were identified namely outcome oriented, empathic and people oriented, intellectually oriented, innovatively oriented and mixed teaching style. Findings revealed that highly structured, well organized, and outcome oriented junior college teachers seemed to maintain student motivation.

Dixon & Wool house (1996) conducted a study on the relationship between teachers' and learners' individual teaching/learning styles. Teachers and learners completed Teaching Style Questionnaires (TSQ) and Learning Style Questionnaires (LSQ) which were analyzed using four preferences—Honey and Mumford's (1986) activist, reflector, theorist and pragmatist. The relationship between the teachers' and learners' preferred styles was shown to be variable. The engineering sub group demonstrates the same level of preference in the reflector and pragmatist categories, but differences in the other two. The humanities teachers and learners had minor differences in preference in all four categories.

Fisher, Fraser and Kent (1998) investigated relationships between teacher-student interpersonal behaviour and teacher personality. A sample of 108 teachers from eight secondary colleges in Tasmania, Australia completed the Myers-Briggs Type Indicator (MBTI) and Questionnaire on Teacher Interaction (QTI). The results revealed that greater positive association was found between teacher personality and their student’s perceptions. Teacher personality appeared to be consistently associated with teacher self-perception of being friendly, helpful, giving freedom, responsibility and opportunity for independent work in class, uncertainty, maintaining a low profile and being passive. Students’ perception of their teachers inter personal behavior were related to the personality of the teacher in regard to how much freedom and

responsibility students thought they were allowed. The relative proportions of the 16 personality types of the MBTI in the sample were determined and the college teachers were heavily represented by TJ (Thinking-Judging) types of personality.

Lacey, Saleh and Gorman (1998) studied teaching style of male and female professors. The sample selected for the study was faculties at the school of education (47% male teachers and 53% female teachers) in the mid southern university were asked to complete Teaching Belief Scale and a demographic profile. Data analysis grouped respondents as: providers (low inclusion, high sensitivity, structured activities); facilitators (high inclusion, low sensitivity, subject-centered); experts (low inclusion, low sensitivity, subject centered); enablers (high inclusion, high sensitivity, varied teaching practices); or neutral. The study found that 78% of all respondents preferred either the provider or enabler style. Male teachers were found to be more dominant and exacting in their teaching style, while female teachers tend to be more informal and open towards students. In addition, 53% of female teachers preferred teaching learning decisions constructed by learners.

Bromfild, Clarke and Lynch (2001) conducted a study comparing alternate teaching styles to teach computing skills to girls in their English classes. An intervention developed to tackle the low female participation rates in computing. Computing skills were introduced to girls in their English classes using three different teaching styles: peer tutoring, cross-age tutoring and teacher instruction (control variable).The sample comprised 136 girls from a government school. A pre-test post-test quantitative design was used. To describe the student perspective, qualitative data were collected from six focus groups conducted with 8-10 students- one from each of the six classes. It was predicted that cross-tutoring would yield more positive effect than peer tutoring, which, in turn, would yield more positive effect than traditional

teacher instruction as assessed by achievement on class tasks and attitude towards computing. In qualitative data, cross age tutoring was appraised more favourable than peer tutoring or teacher instruction.

Curtner-Smith, Todorovich, McCaughtry, & Lacon, (2001) investigated urban teachers' use of productive and reproductive teaching styles within the National Curriculum for Physical Education. The main purpose of this study was to describe the teaching styles employed by a sample of 18 teachers working in an urban setting under the conditions of the first revision of the National Curriculum for Physical Education. A second purpose was to compare the teaching styles used by this urban sample of teachers with those employed by a rural sample we had studied previously. Two lessons taught by each teacher to pupils in Years 7, 8, or 9 during one summer term were videotaped and coded with the Instrument for Identifying Teaching Styles, a systematic observation instrument designed to record the percentages of time in which teachers employ each of eight teaching styles. Descriptive statistics were computed across all 36 lessons and for lessons on striking/fielding games, track and field events, and tennis. Independent t-tests were used to compare the teaching styles used by the urban sample of teachers in the present study and those used by the rural sample previously studied. Results indicated that the teachers in the present study spent most of their time using direct styles of teaching. Their pattern of teaching style use was very similar to that of the rural teachers observed in the earlier study.

Kulinna and Cothran (2003) studied physical education teachers' self-reported use and their perceptions of various teaching styles as per the theoretical base of Mosston's Spectrum of Teaching Styles. Participants were 212 physical education teachers representing a variety of elementary and secondary school settings. Teachers had significantly different experiences in the use and perceptions of the different teaching styles. Results showed that

teachers' overall perceptions of the teaching styles were similar to their individual ratings of the styles for fun, learning, and motivation. One notable exception was teacher ratings of the command style as highly effective for learning with lower ratings for fun and motivation. Teachers reported using many of the styles in their classes; however, their use of the productive styles was much lower than their use of the reproductive styles. Only one productive style (divergent production) was in the top five styles used by teachers.

Zhukov (2004) conducted a study on teaching style and student behavior in instrumental music lessons in Australian conservatoriums. The study aimed at to examine a wide range of areas associated with instrumental music teaching in order to identify patterns of behaviour exhibited by the teacher and students and to define teaching and learning styles present in advanced applied music teaching. The study concluded that the findings expand current conceptions of studio teaching by introducing a broad based approach that includes assessment of lesson structure, content , teaching methodology and teacher/student relationship. Furthermore, the result shows little evidence of teachers applying sophisticated techniques for developing their students' abilities for sight reading and memorizing music, and approach to practicing.

Cohen and Amidon (2004) studied the relationship of reward and punishment as a way of predicting teaching style. The samples selected for the study were pre-service teachers' (N = 172) reported their childhood experiences involving reward and punishment within their families to identify ideal perceptions of direct or indirect teaching style. The most consistent relationship of childhood experience with reward and punishment and perceived teaching style was between the reward inventory and indirect scores. High reward scores were associated with indirect style and high punishment scores tended to relate to direct style. Relationships among

teaching-style categories with several variables were significant. Gender (males) and low reward contributed to perceptions of a direct teaching style. Highly rewarded students, older students, and gender (females) contributed to perceptions of indirect teaching style. Family income, age, and ethnicity were associated with reward.

Barrett (2004) conducted a study on a comparison of online teaching styles in Florida community colleges. This study determined whether differences existed between the teaching styles of male and female community college instructors who teach online. The Principles of Adult Learning Scale (PALS) was used to measure overall teaching style and seven factors related to teaching style. The population consisted of all instructors at Florida's 28 community colleges who were teaching in an online distance education environment. MANOVA and ANOVA were used to analyze the data which was collected through a web-based administration of PALS. Results showed a difference in the teaching styles of male and female community college instructors who taught online. Women exhibited a more learner-centered style than men in terms of their overall teaching style. Differences were also obvious based on the second factor, Personalizing Instruction, in which case, women were more likely than men to implement a more learner-centered teaching style. In terms of the demographic variables, differences in teaching styles were noted based on discipline and whether the instructor taught full or part-time. Those instructors who taught in disciplines considered soft/applied implemented a more learner-centered style. Instructors in the hard/pure disciplines demonstrated a greater use of a teacher-centered style. Part-time instructors used a more learner-centered style. A difference in the teaching styles of men and women showed teaching styles that are below the original norms of PALS, highlighting an online teaching style that is more teacher-centered.

Dupin-Bryant (2004) identified teaching styles of university interactive television instructors. The instructors (N = 203), representing nine Land Grant universities, USA, participated and completed a demographic survey and the Principles of Adult Learning Scale (PALS), a forty-four item teaching-style assessment instrument. Descriptive statistics revealed that interactive television instructors displayed behaviours representative of both learner-centered and teacher-centered styles, with a strong inclination toward a teacher-centered approach to the distance teaching process.

Zhan, Huang and Zhang (2005) studied preferences in teaching styles among Hong Kong and US university students. The sample comprised for the study was 255 Hong Kong and 81 US students. The participants responded to Preferred Thinking Styles in Teaching Inventory along with three ability scales rated by themselves. The major findings of the study were, primarily, university students' preferred teaching styles were uncovered by a theory based inventory. Secondly, a large degree of similarity was identified in students' preferred teaching styles and thirdly, students' preferred teaching styles were predictable from their characteristics and their self-rated abilities.

Foster (2006) conducted a study on teaching-learning style preferences of special education teacher candidates of North Eastern state university in Oklahoma. The purpose of this study was to describe the educational philosophy, teaching style, and learning strategies of the Special Education teacher candidate at North-eastern State University. Participants in this study were undergraduate and graduate students majoring in Special Education. The study identified educational philosophies using the Philosophy of Adult Education Inventory (PAEI), teaching style using the Principles of Adult Learning Scale (PALS), and learning strategy preferences using the Assessing the Learning Strategies of AdultS (ATLAS). The data were collected by administering these instruments to 96 individuals in the Special Education

teacher program at North-eastern State University. About 37.4% of participants supported the Progressive philosophical point of view. The Humanistic philosophical point of view was second with 22.0% and was slightly ahead of the Behavioristic point of view with 19.8%.The Radical and Liberal philosophical point of views had very few supporters and were at 6.6%.Approximately 8% of the participants scores indicated a mixed philosophical point of view by having equally high scores in two or more philosophical scores. For learning strategy preferences of the Special Education majors, 25.88% were Navigators, 28.24% were Problem Solvers, and 45.88% were Engagers. Moreover, The Special Education majors total PALS score indicated a commitment to the teacher-centered teaching style.

Dasari (2006) studied the influence of matching teaching style and learning style on the achievement in science of grade six learners. The aim of the investigation was to determine whether there is significant difference in the academic achievement of six grade science students when teaching styles are matched to their learning style. Study followed experimental design and the sample comprised of two class units randomly selected. The result indicated a statistically significant difference between the pre-test and post-test scores of the experimental group. The conclusion reached is that matching teaching style to learning style improves academic success of sixth grade learners in science.

Opdenakker and Damme (2006) conducted a study on teacher characteristics and teaching styles as effectiveness enhancing factors of classroom practice. This study examined effects of teacher characteristics (gender, teacher education and certification, class management skills and job satisfaction) and teaching styles on indicators of good classroom practice in mathematics classes in secondary education by means of multilevel analysis. The study reveals that the presence of effective classroom practices can be

explained by a learner-centered teaching style and by good class management skills. Furthermore, it was found that teachers with a high level of job satisfaction give more instructional support to their classes, especially to classes from a low-ability range, than teachers with a low level of job satisfaction.

Xiao & Tianjin (2006) studied the gap between teaching styles and learning styles. The main purpose of the study was to investigate the nature of the mismatch caused by culture-based differences in perceptions and expectations of L2 teaching and learning style preferences between Irish English teachers and Chinese students. A survey was conducted which included a questionnaire, interview and class observation at two language institutes in Dublin, Ireland. The findings suggest the mutual awareness of the cultures of learning should be required. Besides, it is mutual responsibility to gain intercultural understanding so as to ensure effective teaching and learning outcomes. Moreover teachers ought to develop awareness of their learners' culture of learning including their needs, wants, capacities, potentials and learning style preferences to meet learners' expectations.

Salvara, Jess, Abbott, & Bognár (2006) conducted a study to investigate the influence of different teaching styles on pupils' goal orientations in physical education. The samples selected for the study was 75 sixth grade pupils in Greece and administered Learning and Performance Orientations in Physical Education Questionnaire (LAPOPECQ) twice, before and after the application of the teaching programme consisting of four teaching style groups. Employing a paired samples *t* test, the results indicated significant pre-to-post changes. Thereafter, a two-way independent analysis of variance and post-hoc techniques resulted in significant differences in the pre-to-post changes of pupils' goal orientations. The effect of gender differed only for the knowledge assimilation group (KAG) and mainly for the knowledge

production groups (KPG), examined with the use of independent *t* tests. Pearson product–moment correlations were applied to determine the degree of relationships in the changes of LAPOPECQ components for each teaching group and for the whole sample. The results indicated that the teaching group denoting knowledge reproduction (KRG) affected negatively pupils' perceived motivational orientations.

Zhang (2006) studied preferred teaching styles and modes of thinking among university students in mainland China. Two hundred and fifty-six (109 male and 147 female) university students from Beijing, participated and completed Preferred Thinking Styles in Teaching Inventory. Chinese students expressed a strong like for teaching styles that are creativity-generating and that allow collaborative work. They indicated a strong dislike for teaching styles that are norm-conforming, that require multi-tasking but without communicating a sense of priority, and that restrict students to working individually, without collaboration with others. Furthermore, it is found that an integrative mode of thinking positively contributed to students' preference for teaching styles that are creativity-generating and that encourage group work, but negatively contributed to students' preference for teaching styles that are norm-favoring and that discourage collaborative work.

Miller (2006) studied the impact of individual teaching styles on student academic achievement. A survey to assess teaching style was distributed to all high school English teachers in the Switzerland of Ohio Local School District. Result focussed that the correlation coefficient was 0.494 suggesting teachers who use some progressive styles of teaching are more likely to have students earn higher grades than teachers who use strictly traditional styles of teaching. Likewise, the correlation coefficient was -0.880 suggesting teachers who are traditional styles tend to give out more low grades than teachers who are more progressive.

Visser, McChlery and Vreken (2006) conducted a comparative study on teaching styles versus learning styles in the accounting sciences in the United Kingdom and South Africa. The participants were 735 undergraduate Accounting students and 46 lectures from one United Kingdom and one South African university empirically surveyed, using Felder-Solomon Index of Learning Style questionnaire for measuring students 'learning style and a questionnaire to identify lecturers' teaching style. Findings revealed that Accounting students tend to be convergers and with regard to the sensing/intuitive dimension, the majority of learners preferred a sensing learning style. The intuitive learning style was ranked last on both UK and South African campuses. With regard to the visual/verbal dimension, it would appear that as many students preferred a balance between visual and verbal learning as preferred a visual approach, and only a few preferred a verbal learning style. With regard to the sequential/global learning style, the majority of students preferred a balance between the two learning styles, with a significant number preferring sequential learning and a minority preferring a global learning style. In the case of lecturers' teaching style, with regard to the sensing/intuitive dimension, the majority preferred a balanced approach, with the remainder predominantly selecting a sensing style. The majority of staff at both universities selected a visual approach as their preferred style of teaching, with the remainder preferring a balance between a visual and verbal approach. With regard to the sequential/global dimension, the majority of the lecturers at both universities showed a preference for a balanced approach, with the remainder predominantly preferring a sequential style. The summary of the findings revealed that there is no significant difference between the learning style preferences of Accounting students at both Universities. In the comparison between the responses of the lecturers in the Accounting Sciences, little difference was noted (p-values were smaller than 0.3) between the teaching styles of the lecturers at the two universities.

Teichman and Contreras-Grau (2006) examined associations between acculturation and teaching styles among 55 young mainland Puerto Rican mothers. Mothers and their children were videotaped during a puzzle-completion teaching task. Three aspects of acculturation were assessed: language, cultural involvement, and exposure to Euro-American culture. More highly acculturated mothers used less modeling and more verbal inquiry and encouragement than relatively least acculturated mothers. Teaching styles were associated with acculturation. Whereas the least acculturated mothers employed a predominantly nonverbal and directive style, the style of more acculturated mothers was more verbal in nature, in both directive and nondirective modes. The findings suggested that an increase in acculturation may be related more strongly to an increase in the use of verbal tactics.

Giles, Ryan, Belliveau, De Freitas, & Casey (2006)studied on teaching style and learning in a quantitative classroom. The purpose of this study was to assess the influence of teaching style on student learning. The study consisted of two sets of lectures from an introductory statistics course: histograms and confidence intervals which developed into two lecture formats: teacher-centred and student-centred. Class content was identical for each lecture format and delivered by the pre-service teacher. Students in four sections of an introductory statistics course (n=143) were invited to participate in the study.The students' rating of perception of the lecturer's knowledge and ability to hold their interest were not significantly different. In contrast, the teacher-centred class was rated significantly higher than the student-centred class on all the remaining categories including: effectiveness of the presentation, use of examples and overall rating.

Louange (2007) conducted a study on relationships exist between students' number sense and their problem solving ability, and the contribution of the teacher's teaching style and the students' learning style towards

students' performance. The problem solving ability and number sense proficiency of three classes of Year 7 students, from three metropolitan primary schools, were compared to their learning style, and their mathematics teacher's teaching style. The sample comprised of 68students (26 males and 42 females) and their 7 teachers were involved in this study. Both the pre-tests and post-tests results revealed that there is significant correlation between students' number sense and problem solving ability. Performance gain analysis indicated that most students' number sense and problem solving performance improved, and the teaching style of the teacher could be one of the main factors responsible for such an improvement.

Laird (2007) studied gender gaps in teaching styles. The sample for this study consists of 9, 647 faculty members belonging to different countries and ethnic background. Faculty Survey of Student Engagement was administered among them. The study found gender differences in the percentage of class time spent on various activities Compared to men, women spend a smaller proportion of class time lecturing and a greater proportion of class time on active classroom practices. In addition, the gap between women and men on both dependent measures varies by several course characteristics.

Kraska and Harris (2007) conducted a study aimed at to investigate the relationship between the cognitive style and teaching style preferences of instructors enrolled in the Reserve Officer Training Corps instructor course at the Academic Instructor School at Maxwell Air Force base. Sixty-five cases were examined and PALS administered for measuring teaching style and KAI score for cognitive style. Correlation analysis indicated no significant relationship between cognitive style and teaching style preferences. Multiple regression analysis revealed no predictor variables for either cognitive style or teaching style.

Zhang (2007) examined matching of career personality types to preferences for teachers' teaching styles. Two hundred and fifty-four students (109 males and 145 females) from a large university in Shanghai responded to the Preferred Thinking Styles in Teaching Inventory (PTSTI) for assessing students' preferences for their teachers' teaching styles, the Short-Version Self-Directed Search (SVSDS) for testing Holland's six career personality types, and to the Self-rated Ability Scale for measuring research participants' perceptions of their analytical, creative, and practical abilities. Results suggested that although students preferred teaching styles that matched their career personality types precisely, they were also open to teaching styles that complemented their career personality types.

Zhang (2007) investigated the predictive power of personality traits for teaching style of Chinese high school teachers. Participants were 157 teachers from two senior-high schools in the People's Republic of China. Results indicated those teachers' personality traits as measured by Costa and McCrae (1992) NEO Five-Factor Inventory significantly contributed to teachers' teaching styles as assessed by the Thinking Styles in Teaching Inventory (Grigorenko and Sternberg, 1993) over and above their gender, educational level, and perceptions of the quality of the students they were teaching.

Fan and Ye (2007) studied teaching styles among Shanghai teachers in Primary and Secondary Schools. Two hundred and three (64 males, 139 females) primary and secondary school teachers from Shanghai, mainland China, participated in the study. Research participants responded to the Chinese version of the Thinking Styles in Teaching Inventory (TSTI), based on Sternberg's theory of mental self-government. They also provided a range of demographic information including gender, age, educational level, number of years of teaching experience, subject area taught, and grade taught. The results show that the teachers' teaching styles did not have significant

differences with respect to number of years of teaching experience, subject areas taught (humanities and social science vs. science), and grade taught. However, the participants' teaching styles were statistically different in relation to gender, age, and educational levels. Furthermore, age and gender had significant interaction on the differences in teaching styles. Female teachers were significantly higher than male teachers on the judicial style and the conservative style. Concerning teachers' age and thinking styles, the younger teacher group (aged 21–30 years) scored lower on the executive style than did the other three age-group teachers. Teachers aged 41–50 years scored lowest, whereas teachers aged 31–40 years scored highest on the local style among the four age groups. In addition, participants' gender and age had significant interactions on the differences of their teaching styles: the judicial and local styles, respectively. Lastly, higher educational level meant more creativity-generating trends and fewer norm-favouring trends in teaching styles; lower educational level meant fewer creativity-generating trends and more norm-favouring trends in teaching styles.

Zhang (2007) investigated teaching styles and occupational stress among Chinese University Faculty members. The primary aim of this research is to investigate the predictive power of occupational stress for teaching style among university faculty members. A sample of 144 faculty members from university in the People's Republic of China responded to the Thinking Styles in Teaching Inventory (TSTI) and to four scales from the Occupational Stress Inventory-Revised (role overload, role insufficiency, psychological strain, and rational/cognitive coping) along with rated themselves on three ability scales (analytical, practical and creative). Satisfactory reliability and validity data were obtained for the Chinese version of the four occupational stress scales. After self-rated abilities were taken into account, occupational stress remained a significant predictor of teaching style. A stronger feeling of role overload and more frequent use of a

rational/cognitive coping strategy were conducive to employing both creativity generating and conservative teaching styles; a stronger feeling of role insufficiency and psychological strain had a negative impact on the use of creative-generating teaching styles.

Li1andZhi-zhong (2007) studied discrepancy between native English speaker teachers' teaching styles and Chinese English learners' learning styles. The study discussed learning style preferences of Chinese English learners and teaching style preferences of English teachers and to find if any discrepancy between teaching style and learning style in Chinese EFL (English as Foreign Language) classroom. The participants were 51 English students and 10 NS (native English speakers) English teachers from Jiangxi Normal University and administered teaching style identification scale and learning style scale. Frequency and percentage of NS English teachers' teaching styles are calculated. TEF, Global, Abstract and Verbal are the most used teaching styles. Verbal is the most mild teaching style preference among NS English teachers. Of all the teaching style categories, Analytic and Reflective are the least preferences, whereas they are the most used learning style preferences by Chinese students. From the comparison between teaching styles adopted by NS English and learning styles of Chinese English majors, severe mismatches exist.

Deggs, Machtmes and Johnson (2008) examined the teaching perspectives among faculty from a research extensive university in the southern United States. The faculty members (n=131) by simple random sampling method selected for the study were asked to participate the Teaching Perspectives Inventory a demographic survey. The Teaching Perspective Inventory concerned with five perspectives of teaching namely Transmission perspective, Apprenticeship perspective, Developmental perspective, Nurturing perspective and Social Reform perspective. The ANOVA

procedure was used to determine if dominant teaching perspectives were discipline-specific. The results of this analysis concluded that a significant difference existed among respondents, with Apprenticeship as a dominant teaching perspective.

Provitera and Esendal (2008) investigated on how teaching styles and learning styles can be used to enhance management education. It draws theoretical back of learning style from Felder and Silverman and teaching style from Grasha. The major observations reported that teaching style may appear to be a one-way communication between the professor and the student, while learning styles are more obvious in their involvement of both professor and student. Experts and delegators may present too many details for the global or visual learner. A personal teaching style may not offer an intuitive learner enough chance to explore and discover. The study concluded that teaching and learning styles are two ends of a dynamic continuum, indefinable because they are always changing. In management education, the dynamic between teaching and learning styles may change as both the professor and student progress.

Zhang (2008) conducted a study aiming to identify the preferred teaching styles of secondary-school students and to compare these preferences with those of university students from past research; and to examine the contributions of students' preferred teaching styles to their academic achievement. A sample of 298 students from a Catholic boys' school participated and completed the Preferred Thinking Styles in Teaching Inventory and the Self-rated Ability Scale. Participants' achievements in 12 school subjects were obtained. Results indicated great similarities between the preferred teaching styles of the present sample and those of university students in previous studies. Preferences for style of external, hierarchical, local, and global were positively contributed to achievement scores, whereas

preferences for other styles of oligarchic, judicial, and conservative did so negatively. Results from regressions indicated that students' achievements in all 12 subjects were predicted by particular preferred teaching styles, beyond their self-rated abilities.

Vaughn, and Baker (2008) conducted a study to know different pairings of teaching styles and learning styles make a difference. The objective was to examine the effects of combinations of Teaching Style (TS) and Learning Style (LS) in preceptor– resident (PR–RE) dyads in a long-term teaching–learning environment. Forty-four pediatric PR–RE pairs responded to Grasha's Teaching Styles Inventory and The Grasha–Vaughn Medical Resident Learning Styles Scale (G-VMRLSS), the Clinical Teacher Characteristics Instrument (CTCI) and the Preceptor–Resident Relationship Inventory (PRPRI).Combined CTCI and PRRI means were compared using the *t* test. The facilitator or personal teaching style and collaborative learning style pairs supported a healthy teaching–learning environment. Independent learners rated their preceptors' teaching characteristics positively. Competitive learning style residents rated the relationship with the preceptor and preceptor teaching effectiveness less favourably. Residents overall indicated a less favourable relationship and clinical teaching characteristics than preceptors. The study concluded that certain combinations of teaching style with learning style are perceived by preceptors and residents as more positive than others.

Quiamzade, Mugny and Falomir-Pichastor (2009) conducted a study on epistemic constraint and teaching style. An experimental study investigated the influence of informational dependence on information appropriation as a function of epistemic authority's styles. In a 2x2 design, university students were informed that acknowledging epistemic dependence was related either to academic success or to academic failure. Two types of

teaching styles explored: authoritarian and democratic. The main dependent variable was the extent to which participants appropriated the controversial information from an epistemic authority that used either an authoritarian or a democratic style. Firstly, the results showed that students were more inclined to admit that their own academic competence depended on the information delivered by the teachers when epistemic dependence was related to success s rather than to failure. Secondly, the admittance of dependence had a different impact on information appropriation according to the authority's style. Furthermore, admittance increased appropriation under a democratic style whereas it decreased appropriation under an authoritarian style.

Zhang (2009) studied the predictive power of conceptions of effective teachers for teaching styles. The sample selected for the study was 93 academic staff from two large comprehensive universities in the People's Republic of China, responded to The Effective Teacher Inventory and to the Thinking Styles in Teaching Inventory. Results suggested that teachers who considered being superior in research-related activities taught more conservatively, whereas teachers who perceived teaching-related activities taught more creatively.

Orhun (2009) studied training and teaching style in accessing a desired classroom discipline at visual art courses. The aim of this study was to determine the right approach of discipline in accessing a desired discipline in the classroom by randomly chosen five visual art course teachers. The study is a descriptive work performed in scanning method. The sample selected for the study were 128 students, 6th year at five primary schools and five visual arts teachers within Denizli City Center, having visual art classrooms. Findings clarified that a mixture of teaching approaches would seem to be the best way to follow, as each student gains in different ways. For this reason, all different teaching methods provide variety of training opportunities for each.

Furthermore, students may easily get bored of direct method13and competitive learning styles. Further, Independent and Participative learning style was not dominant among UKM. The study concluded that it is crucial that lecturer realized the diverse learning style among students and conduct instruction and evaluation technique that matches the different learner in their class.

Naimie, Siraj, Piaw, Shagholi, & Abuzaid, (2010) studied teaching and learning style preferences and the purpose of the study was to explore the impact of teaching and learning style preferences and their match or mismatch on learners' achievement. The sample consisted of 310 English Major Students and four lecturers from the Foreign Languages Faculty of Azad University, Iran. The study employed survey method and Learning Styles Index (LSI) developed by Felder and Soloman was used together with observations and interviews to collect data. The results of the study revealed that matching teaching and learning styles in English as Foreign Language (EFL) classes can help improve students' achievement. The study concluded that teachers must first be aware that they have the power to widen their teaching styles in ways that can meet the versatility of their students' learning style preferences.

Hossein, Fatemeh, Fatemeh, Katri, & Tahereh, (2010) explored nursing teachers' perceptions about teaching style in the clinical settings in Iran. A grounded theory approach was used to conduct this study. Fifteen nursing teachers were interviewed individually and the interviews were tape recorded and later transcribed accurately. The transcriptions were analyzed using Strauss and Corbin's method. Three main and 12 sub themes emerged from data and these could explain the nature of the teaching style. The main themes derived: multiplicity in teaching style, nature of clinical teaching, and control and adaptation in education atmosphere. Multiplicity in teaching style was the

dominant concept in this study. The study concluded that each educator had a personal and individualized style which was flexible according to the situation, type of the skill, course content, education environment and facilities, and level of the learner.

Doğruera, Menevişa and Eyyama (2010) studied EFL teachers' beliefs on learning English and their teaching styles. The aim of this study was to find out whether there is a positive correlation between EFL teachers' beliefs on how their students learn English and how their beliefs affect their teaching styles. The sample selected for the study were 35 full-time EFL teachers (male=10, female=25) who teach in different departments of Eastern Mediterranean University. A questionnaire with three sections (personal details, Teaching Style Questionnaire and Beliefs about Language Learning Inventory (BALLI) administered. The participants were categorized into five factors. Result focused that the most important factor for the participants was the language aptitude of learners. Then, the motivation and expectations of learners play an important role while learning a foreign language. Learning and Communication Strategies of learners were considered as the third most important factor by the participants.

Canto-Herrera and Salazar-Carballo (2010) studied on teaching beliefs and teaching styles of mathematics teachers and their relationship with academic achievement in Mexico. A questionnaire was administered to 72 high school mathematics teachers and the student academic achievement score were used. Result showed that Expert teaching style was the highest mean score (mean = 3.96) and the Delegator teaching style was the lowest mean score (mean = 2.97). Female teachers of mathematics were higher mean scores than male teachers of mathematics in all the five teaching styles. Particularly, female teachers of mathematics showed major difference in Personal Model, Expert, and Facilitator teaching styles. Furthermore, the

result of ‘t’ test for independent groups to verify significant differences between male and female teachers of mathematics about their teaching style showed significant differences between male and female teachers of mathematics only on the Personal Model teaching style. Results revealed that teachers between 26 and 34 years old are more likely to assume the Expert Facilitator, and Delegator teaching styles and teachers 45 and above old are more likely to assume the Formal Authority style.

Klaveren (2011) conducted a study on lecturing style teaching and student performance. This study examined whether the proportion of time that teachers lecture in front of the class influences the cognitive performance of students in the Netherlands. In this study we find no relationship between the proportions of time spent lecturing in front of the class and performance of students in Netherlands.

Zhang (2011) conducted a study concerned with teaching styles and conceptions of effective teachers by comparing Tibetan and Han Chinese academics. The Thinking Styles in Teaching Inventory and the Effective Teacher Inventory were administered to 162 Tibetan academics and 93 Han Chinese academics. The results warranted two conclusions. First, the Effective Teacher Inventory was appropriate for assessing Tibetan academics' conceptions of effective teachers; and there was no substantial difference in the conceptions of effective teachers between the two samples. Second, as it was among Han Chinese academics, the perceptible “research–teaching dichotomy” was identified among Tibetan academics. Moreover, Tibetan academics attached more importance to motivation and enthusiasm than did the Chinese academics.

Dinçol, Temel, Oskay, Erdoğan, & Yılmaz, (2011) investigated matching between the learning styles of instructors and teacher candidates and between the teaching styles of instructors and learning styles of teacher

candidates. The study also examined the effect of this matching on the success of teacher candidates. Teaching Styles Inventory was applied to the instructors. Grasha-Reichmann Learning Style Scale (GRLSS) was applied to the teacher candidates and to the instructors. Students' grades related to the Chemistry and Teaching Pedagogy were taken as a success criterion. It is concluded that matching learning styles of instructors with that of teacher candidates and matching teaching styles of instructors with the learning styles of the teacher candidates has not significant effect on the success of the teacher candidates.

Çakmak (2011) studied prospective teachers' opinions about their instructors' teaching styles. The participants of this study were the prospective teachers from Mathematics Education Department (n=100) of Gazi University's Faculty of Education. Both qualitative and quantitative designs were used in this study. The data collection tool was a questionnaire which included open-ended and other type of questions. There were fifteen items and four open-ended questions regarding teaching styles. This finding implied that participants expect their instructors to use various instructional methods and techniques in their classes. However, the common use of lecturing and the preference of the blackboard as the main material in math education may have shaped participants' responses.

KhandaghiandRajaei (2011) conducted a study to investigate student-teachers and their educators' preferred teaching styles among active and inactive teaching styles, in Shahid Hashemi-nejad Teacher Education Center, located in Mashhad, Iran. Using Morgan's formula, 85 (including 9 educators and 76 student-teachers) were randomly selected among all 70 educators and 200 student-teachers (N= 270) in this centre. They were asked to complete preferred teaching style questionnaire having 39 Likert type items regarding active and inactive teaching styles. The results showed that there were no

significantly differences between student-teachers and educators' dispositions towards active and inactive teaching styles. These two groups had relatively similar views on the components of teaching styles in both active and inactive ones and both groups preferred active teaching style to inactive one**.**

Khandaghi and Farasatb (2011) studied on the effect of teacher's teaching style on students' adjustment. Concerning the importance of adjustment in improving learning and adaptive behaviours of students, this study focussed at to investigate the effect of two types of teaching style, i.e. teacher – oriented (active) and learner – oriented (inactive), on adjustment of students in three emotional, social and educational domains.The participants were 31 teachers and 300 students in fifth grade were selected by multi-stage cluster sampling. Findings indicated the mean scores of emotional, educational and social adjustments of students whose teachers use an active teaching style is more than students that their teachers use an inactive teaching style. Also, there is a significant difference between the emotional and educational adjustments among the students who have two different kinds of active and inactive teaching styles. Learner centered teaching style causes to increase the educational and emotional adaptation of students. There is no significant difference between the effects of the two teaching styles on social adaptation.

Li and Kam (2011) studied on Mosston’s reciprocal style of teaching in Hong Kong. The study aimed to examine students’ and teacher’s experiences when engaging in learning and teaching in reciprocal teaching. Sample consisted of 80 male students from three classes from a local secondary school and their Physical education teachers were invited to participate in the study. Following action research perspective, 3 teaching units of gymnastics, swimming and handball were conducted in the form of reciprocal teaching. Teacher’s self-review were collected at the end of the teaching units. Findings

of the study revealed that the teacher and students experienced reciprocal teaching positively. While using reciprocal teaching, students perceived their learning as active and comfortable and they were satisfied with their mastery of skills, engaging peer tutoring roles, taking care of others and partner's improvement. The study concluded that the reciprocal teaching might solve some of the current problems of Physical education classroom including passive learning, little collaboration and weak accountability of learning.

Fries (2012) conducted a study on teaching style preferences and educational philosophy of teacher education faculty at a Midwestern state university and to determine the extent to which these matched with the university's College of Education educational philosophy and preferred teaching style. The on-line survey contained the Philosophy of Adult Education Inventory (PAEI), the Principles of Adult Learning Scale (PALS) and a demographic questionnaire. Study revealed that slightly more than half of the teacher education faculty (53%) had a dominant educational philosophy preference for progressive. The second most dominant philosophy among the respondents was humanistic (17%). Several of the faculty (13%) did not have a single dominant philosophy and instead had a mixed philosophy of two or more. Furthermore, the radical philosophy was not a dominant philosophy for any of the teacher educators and the dominant philosophy was determined by comparing each respondent's raw scores for the five philosophies: liberal, radical, behavioural, progressive and humanistic. The philosophy with the highest score represented the one most like the respondent's beliefs, while the respondent's lowest score reflected a philosophy which was least like the respondent's beliefs. Besides, there were three philosophies, humanistic (71%), behavioural (77.5%), and progressive (86.6%), which had raw scores in the higher range of the PAEI.

Asadollahia (2012) explored Iranian EFL teachers' classroom management orientations and their relationship with the teaching styles teachers employ in English classes. Three hundred EFL teachers filled the Attitudes and Beliefs on Classroom (ABCC) Inventory, used to measure teachers' classroom management orientations and Teaching Activities Preference (TAP) questionnaire, used to observe how EFL teachers would rate a variety of teaching activities in teaching English. It grouped teaching activities in eight teaching styles based on personality dimension; extroverts, introverts, sensing types, intuitive types, thinking types, judging types, perceiving types, and feeling types. It was found that most Iranian EFL teachers were interventionist with respect to their classroom management approaches. Furthermore, it was found that teachers who were more interventionist in their classroom management used more teaching activities than those teachers with internationalist classroom management orientation. The result revealed that classroom management orientations could predict 28% of the variance of teaching style. Furthermore, the results showed that there is significantly positive relationship between all three subscales of ABCC and teachers' teaching style.

Ngware, Mutisya and Oketch (2012) studied patterns of teaching style and active teaching across subjects and between primary schools in Kenya. The data collected in 72 primary schools spread across six districts in Kenya. Video recordings of 213 lessons in maths (72), science (71) and English (70), and interviews with subject teachers in primary schools, were used to generate evidence on patterns of teaching styles and active teaching. Findings focused that teaching practice across subjects is inclined towards the command and task styles that do not promote critical thinking among learners. The dominant teaching activity was individual seat work in maths lessons; recitation in English lessons; and whole class chorus in science lessons. Overall, active teaching accounted for 62% of the lesson time. The one way ANOVA results

show insignificant variation between subjects and school category on active teaching.

Hussain and Ayub (2012) learning styles and teaching styles at undergraduate level in a business school. Canfield Learning Styles Inventory (CLSI, 1992) and Staffordshire Evaluation of Teaching Styles (SETS, 2007) were used. The sample selected for the study was 262 students (139 males; 123 females) and 12 teachers, through random sampling, from four disciplines: Marketing, Management, Human Resource Management, and Finance. There was a positive correlation between student learning style and teacher teaching style, which was statistically significant ($r = 0.77$, $n = 262$, $P < .0005$). The results clearly indicate that awareness raising sessions should be arranged for students and teachers to realize the importance and implications of knowing their learning and teaching styles in business education environment.

Babu and Gafoor (2013) conducted a study on philosophical orientation of B.Ed students. Lack of consistency in student teachers philosophical perspectives on the seven aspects of teaching learning is perceptible. Result shows that student teachers aim progressively, consider curriculum from pragmatic perspective, but ambiguous in methods to be employed. Furthermore, regarding school organization they are realistic, and on discipline humanistic. They want students to be Idealistic and judge themselves in Existentialist ways.

Gafoor and Babu (2013) studied preferred teaching behaviour of student teachers, a post B.Ed study from Kerala. The participants were 268 student teachers. Result shows that student teachers have Expert preference in the areas of classroom management, asking questions and assessing student quality. Student teachers are formal authority in estimating student responsibilities and keeping time management. They follow Personal style in

classroom communication, dealing classroom problems, framing educational aims, evaluation, projects and reinforcement; follows facilitator style in classroom communication, teaching method and setting educational aims and learning goals, and lastly follows delegator style examination, preparation of lesson plan and evaluation of answer scripts.

Chilemba and Bruce (2014) studied on teaching styles used in Malawian BSN programmes. The participants were nurse educators in the four year Bachelor of Science in Nursing (BSN) programme, according to Grasha's (1996) five teaching styles. Result revealed that The Expert and Delegator teaching styles were moderately preferred by the majority of nurse educators. The Facilitator teaching style was the least preferred by 66.90% of educators who also reported weak facilitative skills in the sub-scales. Similarly, educators reported a low preference for the Personal Model teaching style.

Briesmaster and Briesmaster-Paredes (2015) studied on the relationship between teaching styles and NNPSETs' anxiety levels. Research indicates that approximately 50% of foreign language learners experience some form of anxiety in the learning process, and that learning and teaching styles in particular are possible sources of language anxiety (LA). Teaching styles were identified according to the Grasha-Riechmann Teaching Style Survey (1996) while learner anxiety was measured through the Foreign Language Class Anxiety Scale (FLCAS) developed by Horwitz, Horwitz, and Cope. Results suggest that certain teaching styles or style clusters seem to provoke more anxiety, especially when accompanied by other factors such as gender, grade point average and past performance.

Studies on Learning Styles in Adults in Teaching-Learning and Professional Contexts

Cooper and Miller (1991) studied on MBTI Learning Style-Teaching Style discongruencies. The main purpose of the study was to identify the relative frequencies of student MBTI learning style and faculty MBTI teaching style for a sample of students and faculty in a college of business. A sample of 113 students and 16 faculties participated in the study. All participants completed the Myers-Briggs Type Inventory (MBTI) along with an additional questionnaire. Result revealed that professors were more likely to teach in an intuitive style, whereas more students wanted to learn in a sensing style. The level of learning style-teaching style congruency was related to academic performance and to student evaluations of the course and the instructor. The differences in evaluations (both students and instructor) were significant and differences in course grades were not significant.

Raven *et al (*1993) conducted a comparative study on learning styles, teaching styles, and personality styles of pre-service Montana and Ohio Agriculture Teachers. The participants of the study were pre-service agriculture teachers in the Department of Agricultural and Technology Education at Montana State University and in the Department of Agricultural Education at The Ohio State University. Three instruments were used. The Group Embedded Figures Test (GEFT) was administered to determine the preferred learning style of the subjects as either field-dependent or field-independent. The Van Tilburg/Heimlich Teaching Style Preference Inventory (VHTSP) was used to ascertain the subjects' preferred teaching style. The Myers-Briggs Type Indicator (MBTI) Form G was used to assess the personality type of the subjects. Data showed that 67% of the MSU subjects were field-independent learners and 33% were field-dependent learners while 56% of the OSU subjects were field-independent and 44% were field-

dependent. In the MSU sample, just over half of the males were field-dependent while all of the females were field independent. Result pointed that the tendency for both MSU and OSU females to be more independent than their male counterparts. The data showed that 91% of the MSU pre-service teachers preferred the “enabler” teaching style. Only 9% of the MSU subjects preferred the “provider” teaching style while no subjects preferred the “expert” style or the “facilitator” style. The majority of Ohio pre-service teachers preferred a learner-centered teaching style. However, there were greater percentages of OSU students preferring the “provider ", “facilitator”, and “expert” teaching styles. The MBTI results indicated that the majority of the MSU subjects were ISTJ, ISTP, or ENTP. The majority of OSU subjects were either ESFJ, ESTJ or ISTJ.

Hickson, and Aikman (1994) studied on learning style differences in ethnic populations and ways to accommodate these differences in educational environment to enhance student success. Result of the study indicated that 12 variables on the Learning Style Inventory significantly discriminate between four ethnic groups (White, Asian, Hispanic and African-American).

Nuby and Oxford (1996) studied learning style preferences of native American and African-American secondary students as measured by MBTI.A total of 103 African-American from high school in Birmingham (Alabama) and 175 native Americans from Cherokee (North Carolina) participated in this study. Result focussed that there were significant learning differences in the learning style preferences of African- American and native American students. African –American males and females have strong preferences for the sensing and judging dimensions, while native American males and females indicated a preference for intuition and perception. In both populations, females indicated a much stronger preferences for feeling. The study concluded that, each cultural group demonstrated a variety of learning

style characteristics, and suggesting that not all members of the culture could be characterized the same way.

Dixon and Woolhouse (1996) conducted a study to ascertain whether there is a relationship between the preferred teaching styles of teachers and the preferred learning styles of their learners. Teachers and learners (Engineering and Humanities) completed Teaching Style Questionnaires (TSQ) and Honey and Mumford Learning Style Questionnaires (LSQ) which were analysed using four preferences (activist, reflector, theorist and pragmatist).There was only a small disparity between the teachers' preferred learning styles and their teaching style preference, especially among the engineering teachers where the level of preference is the same for activist and pragmatist. When comparing the preferred learning styles of students with the preferred teaching styles of their teachers, clearly found that there was a greater disparity for the engineering group, while for the humanities group there was only a small disparity. For the engineers this disparity is most apparent in the activist category where students have a high preference while their teachers have a low preference. In the theorist category where students have a low preference while their teachers have a high preference.

Fitzgerald and Bloods worth (1996) studied the learning style of rural college students. They found these students perceive learning as a social experience. They had an aversion to individual recognition; and preferred cooperation with others; and they preferred to have information transmitted orally. Using these findings, instructors of rural college students structured their classes to incorporate more than projects and oral presentations.

Veronica and Lawrence (1997) studied learning style preferences of secondary school teachers and managers. The preferred learning styles of secondary school teachers and managers were investigated using the Honey and Mumford model of learning styles. The LSQ identifies four learning style

preferences: Activist, Reflector, Theorist, Pragmatist. Data was collected (1989-1992) from a random sample of 353 Main Professional Grade (MPG) teachers and 47 senior managers working in Local Education Authority (LEA) maintained secondary schools. The major findings of the study were teachers tended to have similar learning style preferences, namely, Reflector with a back-up preference for Theorist and their least preferred style was Pragmatist. Besides, where learning style preferences differ between teachers, these could be accounted for by differences in subject taught. Lastly, significant differences in learning style preferences were found between MPG teachers and senior managers in schools.

Busato, Prins, Elshout, and Hamaker, (1999) investigated the relationship between learning styles, the big five personality traits and achievement motivation. Participants were 900 students of University of Amsterdam, Holland. Result revealed that extraversion correlated positively with the meaning directed, reproduction directed and application directed learning style. Conscientiousness was associated positively with the meaning, reproduction and application directed learning style, and negatively with the undirected learning style. Openness to experience correlated positively with the meaning and application directed learning style, and negatively with the undirected learning style. Agreeableness was associated positively with the reproduction and application directed learning style. Besides, it was found that neuroticism correlated positively with the undirected learning style and negatively with the meaning and reproduction directed learning style. Positive correlations were found for achievement motivation with the meaning, reproduction and the application directed learning style, and a negative one with the undirected learning style.

Slaats, Lodewijks, and van der Sanden, (1999) studied on disciplinary differences in learning styles. Results indicated that a strong differences in

learning styles between students in different disciplines of vocational study, thereby supporting a domain-dependent viewpoint. The participants were 1036 students (471 males and 449 females) in vocational education, representing the four disciplines namely technical, health, commercial, and agricultural studies. They were administered The Inventory of Learning Styles for Secondary Vocational Education (ILS-SVE).Analysis of the differences between disciplines showed a prevalence of only one learning style per discipline. In commercial studies the reproductive learning style is prevalent, in technical studies the constructive learning style, in health studies the versatile, and in agricultural studies the passive learning style.

Sadler-Smith (2000) studied on learning preferences and cognitive style. The study explored cognitive styles and learning style preferences of 127 personnel practitioners in UK, by administering Cognitive Style Index and Learning Preferences Inventory. Respondents preferred traditional and work based methods of learning over self-directed methods. The relationship between cognitive style and preferences appeared to be mediated by gender.

Reed (2000) studied on the relationship between learning style and conventional or modular laboratory preference among technology education teachers in Virginia. The participants were randomly selected 195 teachers from public middle school technology education. The teachers were asked to complete the Learning Type Measure (LTM) instrument; demographic questionnaire and Bernice McCarthy's research on the 4MAT System of Leadership and Instruction were used to describe the laboratory environments and the teaching and learning styles of the respondents. Findings revealed that sixty per cent of respondents taught in a modular laboratory and forty per cent taught in a conventional laboratory. Of the four learning styles identified by the LTM (Imaginative, Analytic, Common Sense, and Dynamic), respondents overwhelmingly (69.2%) rated themselves as Common Sense learners.

Common Sense learners encourage practical applications, are interested in productivity and competence, like technical things. The self-perceived learning styles of respondents in conventional laboratories were not significantly different than the learning styles of respondents in modular laboratories.

Crews *et al. (*2000) studied on comparison of secondary Business Education students' learning style with their teacher's instructional styles. The study aimed to check whether a match existed between student preferences and the preferred teaching style of their teachers. Eight secondary business education teachers completed the Canfield Instructional Styles Inventory and administered Canfield Learning Style Inventory to their students (n=232).Eighteen per cent of students indicated that the preferred learning style was independent and three of the eight teachers noted that their preferred teaching style was independent. The preferred learning style of other students were applied (15%), independent/applied (13%), conceptual (13%), social/applied (10%), neutral (10%), social/conceptual (9%), social (6%), independent/conceptual (6%).No statistically significant match was found between the preferred learning style of students and their instructors preferred instructional styles.

Hativa and Birenbaum (2000) on disciplinary differences in students' preferred approaches to teaching and learning styles. The sample consisted of 175 engineering and education undergraduates at a major university in Israel, responded to questionnaire identifying students' preferences for four approaches that correspond to the four main instructional approaches. Findings revealed that engineering students prefer a lecturer who organizes and structures the presentation significantly more than education students and the second, is the instructor who provides for students' needs in learning. Education students preferred the clear and interesting instructor, with his/her

teacher-centred orientation. Among the two approaches least favoured were information-transmission and promotion of self-regulation. Students with different approaches to learning preferred teaching approaches that best served their learning approaches. There were few discipline-related differences in students' preferences, in spite of the very different learning environments.

Bailey, Onwuegbuzie, and Daley (2000) investigated with the purpose of using a broadly focused learning style instrument to identify a combination of learning styles that might be correlated with foreign language achievement at the college level. Participants were 100 university students enrolled in either French or Spanish first and second semester courses. The multiple regression analyses revealed that higher achievers in foreign language courses tend to like informal classroom designs and to prefer not to receive information via the kinaesthetic mode.

Park (2000) investigated the basic perceptual learning style preferences (auditory, visual, kinaesthetic, and tactile) and preferences for group and individual learning of Cambodian, Hmong, Lao, and Vietnamese students and compared them with those of White students. Findings of the study revealed that significant ethnic group differences in the learning style preferences of Southeast Asian and White students as well as significant differences within diverse Southeast Asian groups. But this study did not confirm any gender differences or students' achievement level differences.

Dee, Nauman, Livesay, and Rice (2002) studied on to investigate the learning style preferences of biomedical engineering (BMEN) students at Tulane University. The Felder's Index of Learning Styles was administered for data collection.Tulane BMEN students preferred to receive information visually (88%) rather than verbally, focus on sensory information (55%) instead of intuitive information.They process information actively (66%)

instead of reflectively, and understand information globally (59%) rather than sequentially. In addition, a significantly higher percentage of female students preferred active and sensing learning styles.

Baldwin and Sabry (2003) studied on learning styles profile of undergraduate learners for Interactive Learning Systems (ILS).In this paper investigators argued that a more learner-oriented approach to ILS design should be employed in order to achieve the creation of more effective interactive learning systems. Results showed that the learners exhibited a stronger tendency towards Visual (rather than Verbal), Active (rather than Reflective), Sequential (rather than Global) and Sensing (rather than Intuitive).

Jones, Reichard and Mokhtari (2003) examined the extent to which community college students' learning style preferences vary as a function of discipline. The learning style preferences of 105 community college students (47 males and 58 females) were measured in four disciplines (i.e., English, mathematics, science, and social studies) using Kolb's Learning Style Inventory which was aimed at determining learning mode orientations: concrete experience, reflective observation, abstract conceptualization, and active experimentation. The results revealed significant differences in students' learning styles preferences across disciplines, but not for gender. The assimilator learning style had the largest number of participants for the subject area disciplines of math, science and social studies and for the overall learning style. Diverger had the largest number of participants for English. English was the only discipline that indicated a larger total number of participants in a category other than assimilator. In addition, student learning style preferences varied by academic performance as measured by GPA. Assimilators appeared to have the highest GPAs, followed by convergers, divergers, and accommodators.

Morrison, Sweeney and Heffernan, (2003) learning styles of on-campus and off-campus marketing students. The participants were 174 on-campus and 203 off-campus marketing students and Solomon and Felder Learning Styles Index was administered. Results focussed that greater percentage of marketing students tend to be *sensate, visual,* and *sequential* learners across both on-campus and off-campus teaching models. On-campus students tend to be visual and active in their learning styles, and significantly more so than distance students. Distance students tend to be sensate, reflective, and verbal in their learning styles, and significantly more so than on-campus students. Male students are significantly more visual and sequential in their learning than female students. Both male and female students are also strongly sensate and active, but there are no significant differences between them on these dimensions. Further more, *active* and *visual* students have a more positive attitude toward group work, and *sensate* and *sequential* students have a more negative attitude.

Honigsfeld and Schiering (2004) studied on diverse approaches to the diversity of learning styles in teacher education. The main objective of this study is to investigate teacher candidates' learning style preferences and the implications thereof for their teaching styles. Learning style assessment instruments based on Dunn and Dunn learning style model were administered. Most of the teacher candidates identified strong preferences for verbal kinaesthetic modality, the opportunity to process and internalize new and difficult material by discussing it. Tactile or kinaesthetic perceptual learning was reported as the second most preferred way of learning and auditory modality as their least preferred perceptual modality.

Loo (2004) studied on Kolb's learning styles and learning preferences. Sample used for the study were 201 management undergraduates (113 males and 88 females) for examining the relationships between Kolb's four learning

styles and four learning types, and 12 different learning preferences. A multivariate analysis of variance was performed with the four learning styles as the independent variable and scores from the 12 learning preferences as dependent variables. The effects of only two learning preferences were statistically significant: participating in groups and doing practical exercises. The post hoc multiple-comparison tests showed that convergers preferred participating in groups significantly more than did assimilators and that divergers preferred doing practical exercises significantly more than did assimilators.

Healey, Kneale and Bradbeer (2005) studied on learning styles among geography undergraduates. This study assessed whether geographers have a predominant learning style and whether this varies between and within countries. The findings were based on over 900 geography students from 12 universities in Australia, New Zealand, the UK and the US, who completed Kolb's Learning Style Inventory (LSI). Among the four countries examined, assimilators are the dominant group. There were international differences, but students in the UK and the US, whose predominant learning styles are divergers. In Australia and New Zealand there are significant intra-national variations between the universities studied. It is suggested that departments should aim to produce balanced learners with a full range of learning capacities rather than simply matching teaching to existing learning styles.

Crutsinger, Knight and Kinley (2005) studied to profile the learning style preferences of merchandising students and to demonstrate how Web-based instructional strategies can accommodate their unique preferences. The participants were 340 students who enrolled in three undergraduate merchandising courses completed the 44-item Index of Learning Styles (ILS) of Felder and Silverman. When learning styles were analyzed, the highest percentages of students were active (49.7%), sensing (57.1%), visual (67.4%),

and sequential (52.1%) learners. The majority of merchandising students showed strong behavioural (active, sensory, visual, and sequential learning styles) learning preferences.

Cassidy (2006) conducted a study aiming to examine the relevance of learning style to student self-assessment skill. A sample of first year under--graduate students were asked to provide self-assessed marks for their course work and to complete measures of learning style. Tutors' marks for student course work were also gathered. Result revealed that a positive correlation between a deep approach to learning and self-assessment skill and a negative correlation between students estimated mark and a surface approach. The study suggested that students are sensitive to the demand characteristics of the assessment and are aware of how these correspond to their preferred learning style. Both strategic and deep approaches to learning correlated positively with tutor mark.

Pedrosa, Almeida, Teixeira-Dias, & Watts (2006) studied on Kolb's learning styles and approaches to learning. The purpose of the study was to identify the types of questions that students ask during the learning of chemistry; discuss the role of students' questions in the process of constructing knowledge, and to investigate the relationship between students' questions approaches to learning and learning styles. The questions raised by 100 first year chemistry students in science and engineering course at the University of Aveiro, Portugal were collected. These students were invited to complete Kolb's Learning Style Inventory and were observed during diverse class activities. Ten of these students were selected for interview. The paper finds that the data enable the placement of students at different stages of learning development at an "acquisition", " specialization "or "integration" phase. The interviews confirm the results of the LSI survey, and indicate that these students show either "deep" or "surface" approaches to learning, with

evidence of a meso approach (intermediate between the two, with characteristics of both).The study concluded that students who show a surface approach and stay within the acquisition stage, tend to formulate low level questions.

Sayer and Studd (2006) studied on matching learning style preferences with suitable delivery methods on textile design programmes. The study concerned with the learning styles of textile and fashion design students at The University of Manchester and Manchester Metropolitan University and identifies their overall learning style biases, and compare these two institutional approaches. The results of both tests revealed that significant trends in designers towards being active and requiring time for contemplation and reflection. Both sets of students show a low preference towards aural learning, and this questioned the suitability of lecturing as a teaching method.

Karns (2006) explored the effects of learning style differences on the perceived effectiveness of 21 learning activities. Results from the survey responses of 227 students at eight universities suggested that a high-investment strategy of catering intensively to learning style individual differences is not warranted. Rather, marketing educators can sufficiently meet the needs of students by providing a range of learning experiences that hit multiple learning modalities. Active learning pedagogies were seen as more effective.

Demirbas and Demirkan (2007) conducted a study which focussed on design education using Experiential Learning Theory (ELT) of Kolb and explored the effects of learning styles and gender on the performance scores of freshman design students in three successive academic years. The three samples were comprised of freshman students of the Department of Interior Architecture and Environmental Design in three successive academic years at Bilkent University, Turkey. Findings indicated that the distribution of design

students through learning style type preference was more concentrated in assimilating and converging groups.

Beck (2007) explored the relationship between case study methodology and learning style preference. The purpose of this study was to look at the use of the case method approach in relation to the preferred learning style of students in an elementary science methods course. The participants were 97 students enrolled in an elementary and elementary /middle level science methods course at Midwest University. All participants were students in an elementary and elementary/middle level teacher preparation program at Midwest University. Participants completed a Barsch Learning Styles Inventory to determine learning style preference. At the end of the semester, students were asked to rate the eight identified teaching methods (Case Study, Concept Mapping, Cooperative Learning, Graphic Organizer, Lecture, Microteaching, Modelling and PowerPoint) utilized throughout the semester as to their effectiveness. Result demonstrated that case studies were rated the lowest of the eight strategies in learning course content by students showing a preference for visual, auditory, and kinesthetic learning styles but fared much better in helping students become better science teachers. However, pre-service teachers found the use of case studies as potentially useful in helping them learn and process course content. The study concluded that if case studies combined with other pedagogical tools, can be helpful in supporting pre-service teachers' acquisition of the knowledge, skills, and attitudes of effective science teachers.

Lee and Li (2008) studied to evaluate the moderating effects of learning–teaching fit and cross-cultural differences on the relationships between expatriate training and training effectiveness. Survey methodology was adopted to obtain data from the opinions of expatriates in foreign companies within Taiwan and China. Survey methodology was adopted to

obtain data from the opinions of expatriates in foreign companies within Taiwan and China. Results of this study revealed that perceived needs for expatriate training have significant impacts on the training effectiveness of expatriates. Besides, if expatriates' perceived needs for communication-related training were higher and if expatriates' perceived needs for culture-related training were higher, they tended to perceive higher training effectiveness. The influence of expatriates' needs for job-related training on training effectiveness is significant.

Shahin (2008) studied the relationship between student characteristics, including learning styles, and their perceptions and satisfaction in web-based courses in higher education. Using Kolb‘s Learning Styles Inventory and Walker‘s distance education learning environment instrument along with demographic questions a survey was conducted in a sample of 279 students in five Web-based undergraduate courses in a Midwestern University. The results indicated that male students preferred AC more than female students and older students (over 21) preferred AC more than younger students (18-21).From the three-way factorial ANOVA model was calculated, the results showed that gender and age were not statistically significant in terms of their learning style preferences, when academic major was controlled. It is concluded that although there are differences among genders and ages, these differences are not significant when academic major is taken into account. Academic major is a significant student characteristic that influences learning style preference.

You and Jia (2008) conducted a study which compared and contrasted the learning approaches and learning styles between Chinese and American pre-service teachers based on the hypothesis that learning preferences tend to vary over cultures. The results showed that significant differences between the two groups in deep and surface-learning approaches as well as

kinaesthetic and visual learning styles. The findings also reveal that American pre-service teachers are more experiential-learning-oriented than their Chinese counterparts. That is, the former prefers learning by doing and integrating the theoretical learning process with real-world experiences. The Chinese participants demonstrate more interest in understanding knowledge through reading widely, while the American participants appear to be relatively more interested in meeting the evaluation requirements.

Rassool and Rawaf (2008) conducted a study for identifying the learning styles preference of undergraduate nursing students and examining its influence on educational outcomes. A purposive sample of 110 undergraduate (47 male and 63 female) nursing students completed a demographic questionnaire and the Honey and Mumford's learning styles inventory. A pre-post-test design was used to evaluate the educational outcomes. Findings revealed that reflector learning styles preference was the dominant learning styles among the majority of undergraduate nursing students, followed by the activist learning styles and in diminished frequency the theorist learning styles and pragmatic learning styles.

Li, Chen, and Tsai (2008) explored the learning style of students in a two-year and a five-year associate degree nursing program, and a two-year degree of nursing program in Taiwan. The Chinese version of the Myers–Briggs Type Indicator (MBTI) used for measuring individual preferences in four dichotomous dimensions of Jungian theory (extraversion/ introversion; sensing/intuition; thinking/feeling; and judging/perceiving).The study sample included 425 nursing students: 94 students in a two-year associate degree of nursing (ADN) program, 235 students in a five-year ADN program, and 96 students in a two-year bachelor of science in nursing (BSN) program. Analyses of the data revealed that the most common learning styles were introversion, sensing, thinking, and judging (ISTJ) and introversion, sensing,

feeling, and judging (ISFJ) among Taiwanese nursing students. The findings of the study indicated that SJ is a popular preference in nursing.

Yildirim, Acar, BullandSevinc, (2008) studied the relationship between teachers' perceived leadership style, students'slearning style, and academic achievement: a study on high school students. A large sample (n = 746) of eighth-grade students in Istanbul, Turkey, were participated and the leadership style of the teacher was assessed in terms of people orientation and task orientation.Reid's Perceptual Learning Style Preference Questionnaire (PLSPQ) was used for measuring students' learning style along with scale for measuring leadership styles of the teachers. The types learning styles examined were group, individual, visual, auditory, tactile, and kinesthetic. Multiple discriminate analyses indicated that teacher leadership style was the main factor affecting academic performance. The most important factor affecting student academic success was student perception of people-oriented leadership from the teacher. No significant relationship was found between learning style and academic achievement.

Ritschel-Trifilo (2009) investigated the effect of learning style pathways on learning and satisfaction in an online biology laboratory for non-science-major undergraduates. Participants in the control group, without knowledge of learning styles, randomly choose from eight instructional strategies, to create a pathway to explore the subject of fermentation and enzymes. Each participant in the experimental group was tested to determine dominant and subdominant learning styles, and was then instructed to follow a specific pathway that conformed to his or her learning styles through the instructional materials to explore the topics. Results of the study show a statistically significant improvement in learning when instructional strategies are matched to dominant and subdominant learning styles compared to instructional strategies unmatched to learning styles. Learners following the

learning style pathway exactly as suggested by Canfield Learning Styles Inventory, with the dominant instruction first, accomplished extremely significantly higher post-test scores over those who only partially followed the suggested learning path. Learners expressed a higher level of satisfaction with the instruction and greater ease of learning when the instructional strategies matched learning styles.

Chang, Kao, Chu, and Chiu (2009) studied on learning style classification mechanism for e-learning. Todemonstrate the viability of the proposed mechanism, the proposed mechanism is implemented on an open-learning management system. The learning behavioural features of 117 elementary school students are collected and then classified by the proposed mechanism. The experimental results indicate that the proposed classification mechanism can effectively classify and identify students' learning styles.

Wilfred W. F. Lau and Allan H. K. Yuen (2009) explored the effects of gender and learning styles on computer programming performance. The sample comprised of 217 secondary school students in Hong Kong, of age from 14 to 19 participated in this study. The Gregorc Style Delineator (GSD) was employed to measure learning styles and a test was administered to assess students' programming performance. Results indicated that no gender differences in programming performance were found after controlling for the effect of student ability and academic ability had a differential effect on programming knowledge. Moreover, sequential learners in general performed better than random learners. These results also suggested that the importance of the ordering dimension of the GSD in influencing programming performance.

Can (2009) studied the effects of science student teachers' academic achievements, their grade levels, gender and type of education they are exposed to on their 4mat learning styles of Mugla University, Turkey.The

purpose of this descriptive study conducted according to scanning model is to determine the learning styles of the student teachers of science; and to investigate the effects of academic achievement, their grade levels (first, second, third of fourth-year), gender and the type of education they are exposed to on these learning styles. The sample was comprised of 273 first, second, third and fourth year student teachers randomly chosen from the Science Department. The data of the study were obtained through The Kolb Learning Style Inventory. The findings of the study show that nearly half of the students of the science department have assimilating style. The other styles opted for by the students are given in order of precedence as follows: converging, diverging and accommodating. It was found that there is no significant relation between the students' learning styles and their achievement levels. Half of the female participants have assimilating style and this is followed by converging learning style. The first learning style preferred by the male participants is assimilating learning style and second place is taken by diverging learning style. Students attending day-time classes and night-time classes mostly prefer assimilating learning styles.

Heffler and Sandell (2009) conducted a study on the role of learning style in choosing one's therapeutic orientation. The aim of the present study was to explore possible associations between psychology students' developing learning styles and their choice of psychotherapeutic orientation. Students in a psychologist's program (N=175) completed the Learning Style Inventory in their third semester and, before their formal choice, in their seventh semester. The main difference between the female and the male students, significant in the third semester only, was that significantly more female students were classified as intuitive observers, whereas significantly more of the male students were analytical observers. The cluster analysis revealed considerable heterogeneity in both groups. In the third semester, a group of intuitive observers who remained stably so toward the seventh

semester, besides a sizable number becoming intuitive pragmatists. There was also, in the third semester, a substantial group of analytical observers the majority of whom remained so into the seventh semester whereas some developed into intuitive pragmatists or intuitive observers.

Choi, Lee and Kang (2009) explored how students' learning styles influence their learning while solving complex problems when a case-based e-learning environment is implemented in a conventional lecture-oriented classroom. Seventy students from an anesthesiology class at a dental school participated in this study over a 3-week period. Five learning-outcome tests and two course-satisfaction surveys were implemented during the case-based instruction using a blended approach (online and face-to-face). The results of one-way ANOVAs with repeated measures revealed that the four learning styles (active–reflective, sensing–intuitive, visual–verbal, sequential–global) did not influence students' learning experience and learning outcomes during the implementation of case-based e-learning.

BayrakandAltun (2009) studied the difference between learning styles of student science teachers in relation to both their grade and gender. The study group consists of 172 1st and 4th grade students from Science Teaching Department at Education Faculty of Marmara University. Learning Styles Survey developed by Renzulli, Smith, and Rizza was used as data collecting tool. Results found that there was a meaningful difference between various learning style dimensions of student science teachers' according to their grade and gender. According to the grades of science teacher candidates, 1st grade students have much more Projects, Lecture, Drill and Recitation, and Peer Teaching dimensions of learning styles than 4th grade students. According to gender of student science teachers, female students have much more Lecture, Programmed Instruction, and Peer Teaching dimensions of learning styles than males.

Amira and Jelas (2010) examined the teaching and learning style of lecturers and students at University of Kebangsaan Malaysia. A translated version of Grasha-Reichmann Student Learning Style Survey and Teaching Style Inventories were distributed to 120 lecturers and 545 students. Results indicated that expert, facilitator and delegator teaching styles were dominant among lecturers while students are more dominant in collaborative and competitive learning styles. The result also shown that male students got higher mean than female students in Independent and Avoidant learning style. Female students showed higher mean on Competitive and Participative learning styles.

Yenice and Aktamis (2010) studied to determine the multiple intelligence domains and the learning styles of the teacher candidates who did not take the teacher training education yet (1st grade) and the teacher candidates who are at the final finishing stage of the education faculty (4th grade).Multiple Intelligence Inventory and Kolb Learning Styles Inventory were administered for collecting data. It is revealed that the pre-service teacher candidates considering for all of the intelligence domains, it has been seen that they are more developed in logical-mathematical intelligence domain. There were more pre-service teacher candidates who had the assimilator learning style before they took the teaching education, however it has been seen that the diverger learning style is more after they took the teaching education.

Ismail, Hussain and Jamaluddin (2010) conducted assessment of students' learning styles preferences in the faculty of science, Tishreen University, Syria. Ninety-seven first year and second year students from four departments participated in the survey. Non-parametric procedures were used. Results indicated that students are not fully Visual, Audio or Kinesthetic. However, the students preferred different learning styles: Visual/Verbal,

Audio/Verbal, Visual/Non Verbal and Tactile/ Kinesthetic. A finding of significant difference indicated that the two samples of females and males differed on the variable of interest.

Oskay (2010) studied on prospective chemistry teachers' learning styles and learning preferences. The purpose of this study was to determine the relationship between learning styles and learning preferences of 100 prospective chemistry teachers. Learning Style Inventory developed by Kolb and adapted to Turkish was used in order to determine prospective chemistry teachers' learning styles, and Learning Preferences Inventory developed was conducted in order to determine learning preferences of the participants. Result revealed that most of the prospective chemistry teachers have Converger and Assimilator learning styles and the most preferred learning activities by prospective chemistry students are doing practical exercises and solving problems. The most preferred learning activity for girls is exercising a lot of creativity and for boys is doing practical exercises.

Patterson (2011) conducted a study entitled as "Impact of a multimedia laboratory manual: Investigating the influence of student learning styles on laboratory preparation and performance over one semester". Learning styles were measured by both the Felder–Silverman–Soloman Index of Learning styles and VARK learning styles instruments. The multimedia manual was beneficial to the learning styles of the students' surveyed, as they were mainly sensing, sequential, reflective, visual and read/write learners. The surveyed Auckland Engineering students were more reflective learners than overseas learners.

Hsieh, Jang, Hwang, & Chen, (2011) studied on effects of teaching and learning styles on students' reflection levels for ubiquitous learning. This study aimed to investigate the effects of teaching styles and learning styles on reflection levels of students within the context of u-learning. The study

considered the teaching styles at the dimensions of brainstorming and instruction and recall and the learning styles at the dimensions of active and reflective learning. The experiment was conducted with 39 fifth grader students at an elementary school in southern Taiwan. A u-learning environment was established at a butterfly ecology garden to conduct experiments for natural science courses. The experimental results of one-way ANCOVA show that those students who received a matching teaching–learning style presented a significant improvement in their reflection level. Clearly, matching the learning styles of students with the appropriate teaching styles can significantly improve students' reflection levels in a u-learning environment.

Fleming, Mckee, and Huntley-Moore, (2011) studied on undergraduate nursing students' learning styles: A longitudinal study. The Honey and Mumford Learning Styles Questionnaire was administered to a sample of students in their first (n=202) and final year of study (n=166), the final sample number (58) was based on matched pairs. The most common dominant learning style in first year was the dual learning category (35%) while a large proportion of the students (53%) in their final year had no dominant learning style. The preferred learning style of students in their first (69%) and final (57%) year was reflector. Learning styles were significantly different at the two time points and there was a significant relationship between some learning styles and students' age but not with academic achievement.

Gujjar and Tabassum (2011) conducted a study to assess learning styles of student teachers at Federal College of Education. In particular, the study focussed to find out if there is a significant difference on learning preferences among student teachers class wise and gender wise. Grasha-Riechmann Learning Style Survey (GRLSS) was used to assess the learning styles preferences of student teachers and it was divided into six learning

styles (independent, avoidant, collaborative, dependent, competitive, and participant). Sample of this study was randomly selected 230 student teachers. Results suggested that student teachers at Federal College of Education were low on independent, dependent participant learning styles, high on avoidant, collaborative and competitive learning style. Gender wise female student teachers were significantly better on all dimensions of LSS except avoidant and, on class wise comparison there was a significant difference on all the dimensions of LSS among the classes. In addition, Student-teachers of B. Ed., B. S. Ed, M. Ed, M A (Education) and Diploma significantly differ on all the dimensions of learning style.

Tulbure (2011) studied on whether different learning styles require differentiated teaching strategies. The main purpose of the study is of identifying the categories of teaching strategies that lead to the best academic outcomes for students having a certain learning style. Five categories of teaching strategies were used along with two Educational Sciences classes in one semester. A sample of 85 pre-service primary and pre-school teachers participated in the study. Data was collected through a survey method and analyzed using a one-way ANOVA. Results supported the idea that students with different learning styles achieve better learning outcomes when confronted with teaching strategies that respond to their learning preferences. The participants with a predominant *converger* learning style seemed to achieve the highest academic scores when they were instructed using an *Investigation* based strategy. Although the *divergers*' achievement scores were only different from that of assimilators, these students seem to prefer the *Debate* based strategy. Besides, the *assimilators* performed academically better when they were instructed based on a teaching strategy that involves the *Graphical organization of information*. Finally, the *accommodators* in our sample obtained the best academic achievement scores when they benefited from the *Problem solving* strategy.

CorinaIurea *et al*. (2011) studied the relationship between the teaching methods and the learning styles and the impact upon the students' academic conduct. In total, 360 students (with an average age between 20 and 35, 124 male and 236 female) with participated in the study. The participant teachers were aged between 30 and 55 and they were teaching subject matters specific to each faculty (medicine, law and psychology).The result revealed that the type of relation exists between the student's dominant learning style and the didactic strategies used by the teachers in courses/seminars, the variables with significant impact upon the academic performances of the students. As far as the Faculty of Medicine and Faculty of Psychology is concerned, the students with active styles are predominant than that in the Law Faculty.

Narli et *al. (*2011) studied on the relationship between individuals' multiple intelligence areas and their learning styles with mathematical clarity using the concept of rough sets. The participants were 243mathematics prospective teachers studying at a state university and administered the Multiple Intelligence Inventory for Educators developed by Armstrong and the Learning Styles Scale developed by Kolb. Result identified that potential secondary learning style that a student can have based on the learning style s/he already has.

Sen and Yilmaz (2012) studied on the effect of learning styles on students' misconceptions and self-efficacy. The main purpose of the study was to investigate the effect of learning styles on students' misconceptions related to the subject of melting and dissolving. Besides, the study analyzed the effect of students' learning styles on their self-efficacy for learning and performance. One hundred and eighteen students studying to the course of Basic Chemistry in the Department of Secondary Science and Mathematics Education in the Faculty of Education of Hacettepe University, participated in this study. The participants provided Learning Style Inventory, to determine

students' learning styles, the Motivated Strategies for Learning Questionnaire (MSLQ), to determine students' 'self-efficacy for learning and performance, and the Melting and Dissolving Concept Test (MDCT), to assess students' misconceptions regarding melting and dissolving. The findings revealed that, students possessing assimilator learning style got significantly higher scores in MDCT than students possessing converger learning style. This result exposed that students with assimilator learning style had fewer misconceptions than students with converger learning style regarding melting and dissolving. Students having assimilator learning style regarded teacher as the most important source of information, prefer lectures performed with audible and visual presentations.

Merveoflaz and Turgut-Turunc (2012) studied on the effect of learning styles on group work activities. The study examined the effects of learning styles in language classrooms. Groups formed by the investigators considering the learning styles of the students showed how learning styles affect the performance on group work activities in language learning. The results of the study indicated that students participate and do well in group work performances in the language classroom, if the teacher takes the learning styles of the students into consideration when forming the groups. The study concluded that balancing activities including all learning styles helps the learner to concentrate, to be motivated and to show a good performance.

Shatalebi, Sharifi, Saeedian, & Javadi, (2012) investigated the relationship between emotional intelligence and learning styles. The study was conducted on a sample of 320 B.A., M.A., and PhD. students. For this purpose, two emotional intelligence questionnaires Bar On with 15 components and learning style questionnaire with four learning styles (Divergent, Convergent, Adaptive, and Attractive) have been utilized. Data

analysis was done according to descriptive and inferential statistics. Findings imply that among 15 components of emotional intelligence, only 3 components including intrapersonal relationships, impulse control, and happiness have been compatible with learning style. There was no relationship between other components of emotional intelligence and learning styles. The study concluded that emotional intelligence indicates individuals' ability where as learning style indicates individual preferences.

Tulbure (2012) studied on learning styles, teaching strategies and academic achievement in higher education. This study aimed at comparing two groups of pre-service teachers (*N*=182) with Educational Sciences and Economic Sciences, in order to identify their learning style preferences, the most effective teaching strategies for each learning style and some possible differences between their academic achievements. Results pointed that some statistically significant mean differences between the achievement scores obtained by three categories of learners (convergers, divergers and accommodators) were found. More precisely, a highly significant difference emerged after the Cooperative learning strategy was implemented and the cooperative learning represented as an effective strategy for Educational Sciences convergers.In addition, Problem solving strategy which seems more appropriate for the Educational Sciences accommodators than for the Economics accommodators. Lastly, no significant mean differences between the two groups of assimilators were found.

Hwang, Sung, Hung, and Huang, (2013) investigated on adaptive learning system by using two versions of an educational game for the best-fit e-learning systems. The experimental results showed that the choices made by the students were not related to their cognitive process or learning style, and most students made their choices by intuition based on personal preferences. Moreover, the students who learned with learning style-fit versions showed

significantly better learning achievement than those who learned with non-fit versions.

Studies on Thinking Styles in Adult and Teaching-Learning Contexts

Cano-Garcia and Hughes (2000) examined whether college students' learning styles (LS) and thinking styles (TS) were interrelated, and if these could predict academic achievement. Sample of 210 college students completed two inventories, one of LS (LSQ, Kolb), and the other of TS (MSG, Sternberg). The results of canonical correlation analysis revealed the presence of a moderate relationship between both types of styles. The results of regression analysis indicated that students' academic achievement was related to students' thinking styles. Besides students prefer to work individually (Internal), that do not enjoy creating, formulating, and planning for problem solution and those that have adherence to existing rules and procedures (Executive) were those which obtained higher academic achievement.

Zhang (2000) investigated the relationship between personality traits and thinking styles within the contexts of Sternberg's theory of mental self-government and Holland's theory of Personality types. A total of 600 university students from Hong Kong responded to the Thinking Style Inventory and Short-version of Self-directed Search that was specially designed for the present study. A major finding of this study is that thinking style and personality. A secondary finding is that the SVSDS is sufficiently reliable and valid for assessing Holland's personality types. The study concluded that teachers may use two inventories to cross-validate student's thinking style so that teachers could either teach and assess students according to student's thinking styles, or teach and assess in a way that they develop students flexibility in their employment of thinking styles. Besides career counsellors may wish to help their clients to explore their career interests

more comprehensively by using the Thinking Style Inventory in addition to administering the SDS and SVSDS.

Zhang (2000) conducted a study on the relationship between thinking styles as defined by Sternberg's theory of mental self-government and learning approaches as defined by Biggs's model of student learning. Participants were two independent groups of American university students (N1=. 67, N2 = 65) and responded to the Thinking Styles Inventory and the Study Process Questionnaire. It was found that the two inventories generally were correlated in predictable ways. Results indicated that there were clear and consistent associations between particular TSI and SPQ scales. It was evident that thinking styles that require more complexity (legislative, judicial, liberal and hierarchical) were significantly positively related to the deep approach scales, but negatively related to the surface approach scales. It was also obvious that thinking styles that require less complexity (executive and conservative) were significantly positively related to the surface approach scales, but negatively related to or had little relationship with the deep approach scales. These results indicated that the two inventories overlap in at least one dimension underlying their respective theories.

Zhang and Sternberg (2000) investigated the relationship between thinking styles and learning approaches in two Chinese populations. The construct validity of J. B. Biggs's (1987) theory *of* learning approaches and of Sternberg's (1988) theory of thinking styles were investigated. Besides, nature of the relations between the two theories also examined. University students from Hong Kong (*n* = 834) and from Nanjing, mainland China (n = 215), completed the Study Process Questionnaire (Biggs, 1992) and the Thinking Styles Inventory (Wagner & Sternberg , 1992). Results indicated that both inventories were reliable and valid for assessing the constructs underlying their respective theories among both Hong Kong and Nanjing

university students. Results also showed that the learning approaches and thinking styles are related. The surface approach was hypothesized to be positively and significantly correlated with styles associated with less complexity, and negatively and significantly correlated with the legislative, judicial, liberal, and hierarchical styles. The deep approach was hypothesized to be positively and significantly correlated with styles associated with more complexity, and negatively and significantly correlated with the executive, conservative, local, and monarchic styles.

Zhang and Postiglione (2001) conducted a study which examined the nature of thinking styles. The samples selected for the study were 694 students ages ranging from 17 to 45 from the university of Hong Kong. The participants responded to the Thinking Style Inventory and Self-Esteem Inventory and provided a range of socio-economic status (SES) indicators. The result showed that thinking styles and self- esteem overlap, when age was controlled. In addition, regardless of age, those students who reported using thinking styles that are creativity generating and more complex, and those who reported higher self-esteem tend to be students from higher SES families.

Zhang (2002) investigated the nature of thinking styles as described in the theory of mental self-government. Two-hundred-and-twelve US university students responded to the Thinking Styles Inventory and the Styles of Learning and Thinking. Results indicated that thinking styles and modes of thinking share certain common variance in the data. Moreover, the more creativity generating and more complex thinking styles are significantly related to a holistic mode of thinking, and that the more norm-conforming and more simplistic thinking styles are significantly related to an analytic mode of thinking. Furthermore, multiple-regression analyses showed that both thinking styles and modes of thinking statistically contributed to students' self-reported grade point averages beyond the self-rated ability scores.

Zhang and Sternberg (2002) investigated the relationship between thinking styles and teachers' characteristics. Research participants were one hundred ninety-three (65 male and 128 female) in-service teachers studying in the Bachelor of Education degree program and the Postgraduate Certificate in Education program at the University of Hong Kong. The participants responded to the Chinese version of the Thinking Styles Questionnaire for Teachers (TSQT) based on the theoretical foundation in Sternberg's theory of mental self-government. Besides the participants provided a 5-point Likert scale rated themselves about their teaching practices and about their perceptions of their school environment. The demographic information such as age, gender, family income, and duration of their teaching experience also examined. The results of the study showed that the TSQT is a reliable and valid inventory for assessing the thinking styles of primary and secondary school in-service teachers in Hong Kong. Cronbach's alphas ranged from .58 to .75, with a mean of .68 and a median of .66.Moreover, results from stepwise multiple-regression procedures indicated that six characteristics of teachers were significantly correlated with the thinking styles specified by the theory of mental self-government. These teacher characteristics are gender, professional work experience outside school settings, the degree of enjoying adopting new teaching materials, a tendency for using group projects in assessing student achievement, perceived autonomy for determining their teaching contents, and their rating of the quality of their students.

Zhang (2004) conducted a study focused on the role of university students' thinking styles in their preferred teaching approaches. Three hundred and forty-eight (111 male and 237 female) students from university in Beijing, P.R. China, responded to the Thinking Styles Inventory (Revised) and the Preferred Teaching Approach Inventory. Results indicated that regardless of age, gender, university class level, and academic discipline, students with different thinking styles had significantly different preferences

for particular teaching approaches. Theoretically, the study contributed to the styles literature in general and to the literature on the relationships between styles (teaching style, thinking style and learning style) and approaches of teaching and learning in particular.

Zhang (2004) conducted a study on the nature of the field-dependence/ independence construct against academic achievement as well as against the thinking style construct as defined in Sternberg's theory of mental self-government. Participants were 200 (154 female and 46 male) students enrolled in the university in Shanghai, the Peoples Republic of China and participants responded to the Group Embedded Figures Test and the Thinking Styles Inventory. Students' academic achievements were also examined in relation to their field-dependence/independence (FDI) and thinking style scores. Major findings are the FDI and the thinking style constructs were unrelated. The particular thinking styles were related to the students overall achievement in mathematics courses and courses in the Chinese language and the FDI scores were related only to students achievement in geometry.

Fjell and Walhovd (2004) conducted a study concerning the investigation of the Sternberg-Wagner Thinking Style Inventory (TSI), with regard to cross-cultural replication and relation to the five-factor personality model (FFM). TSI and NEO-PI-R were administered to 107 participants from USA and 114 participants from Norway. Inter-correlations between NEO-PI-R dimensions and TSI-scales and factors were not very strong, few exceeding 0.40, and the correlations were in predicted directions. Joint factor analyses of TSI and NEO-PI-R showed that TSI covers variance that NEO-PI-R does not explain. Furthermore, it is argued that the thinking styles give an independent contribution beyond FFM dimensions. However, TSI did not relate to FFM in the same manner in the two samples.

Zhang (2005) conducted a study on teaching for a balanced use of thinking styles and students' achievement. Teaching for a balanced use of thinking styles involves instructing and assessing students using a variety of teaching styles, rather than just a single style. Participants were students and teachers from a comprehensive university of Shanghai, the People's Republic of China. Two studies were conducted and the first study involved 95 students in computer science and two teachers, and the second study, 85 students in economics and business administration and two teachers. The result revealed that for the superiority of teaching for a balanced use of thinking styles was found in first study, not in the second one. Furthermore, the results indicated that teaching for the balanced use of thinking styles could enhance students' academic achievement, although not always.

Sternberg and Zhang (2005) conducted a study on how to differentiate instruction using a theory of thinking styles as a basis for differentiation. The study considered some general characteristics of styles, drawing from the theory of mental self-government, issues of measurement, and also discussed application of the theory in the classroom. The study concluded that teaching should be differentiated to help each child capitalize on strengths and compensate for or correct weaknesses.

Klinger (2006) made a study examined whether a thematically designed online introductory psychology course set in a cooperative and collaborative learning environment led to deeper learning. The inventories used for the study were Sternberg's and Wagner's Thinking Style Inventory (TSI, 1992), The Revised Two Factor Study Process Questionnaire (RSPQ-2F; Biggs, 2001) and the Classroom Community Scale (CCS; Rovai, 2002). The study predicted peer and teacher guided asynchronous dialogue would lead to increasing students' self-perceptions of deeper learning approaches (DA) and higher levels of thinking. Individual thinking style (ITS; Sternberg

& Wagner, 1992) was presumed to be an important mediator on both student pre- and post-DA scores. Further, thinking styles didn't predict either pre- or post DA nor end of semester CCS scores.

Zhang (2006) explored the utility of measuring thinking styles in addition to measuring personality. The Thinking Styles Inventory (Sternberg & Wagner, 1992) and the NEO Five-Factor Inventory (Costa & McCrae, 1992) were administered to 199 parents of secondary school students in mainland China. Results from hierarchical multiple-regression procedures indicated that each of the eleven thinking style (Legislative, Executive, Judicial, Global, Local, Liberal Conservative, Internal, External, Hierarchical and Monarchic) scales was significantly predicted by particular personality dimensions. Neuroticism and conscientiousness personality traits predicted the local style, the neuroticism scale predicted the conservative style, and the extraversion scale predicted the external style. The results of the study found that no correlation between neuroticism and the executive style, no correlation between agreeableness and the external style. Extraversion was significantly correlated with both the global style and the local style.

Zhang (2006) investigated on the match/mismatch of student-teacher thinking style matter in student achievement. Participants were 135 (59 male and 76 female) students (average age of 21.5 years) from three academic disciplines (mathematics, physics, and public administration) who responded to the Thinking Styles Inventory and rated their own abilities (analytical, creative, and practical). The academic achievement scores in two subject matters for each student were also used. The students' subject matter teachers responded to the Thinking Styles in Teaching Inventory. The study revealed that, to varying degrees, student–teacher match/mismatch on Type I thinking styles (creativity generating styles) plays an important role in students' achievement. Furthermore, the impact of student–teacher style

match/mismatch upon students' academic achievement was contingent upon three factors. Firstly, the effects of style match/ mismatch upon students' achievement vary as a function of academic discipline and subject matter. Secondly, the statistical procedures used to analyse the data play an important role in the relationships under investigation, and lastly, students' self-rated abilities make a difference in the tested relationships were the major findings of the study.

Zhang (2007) conducted a study which examined the role of students' thinking styles in their knowledge and use of as well as in their attitudes towards the use of computing and information technology (CIT) in education. One hundred and five students from the university in Texas responded to the Thinking Styles Inventory and to a brief measure of their attitudes towards the use of CIT in education. The findings of the study showed that the more creativity-generating thinking styles (judicial, global, and oligarchic styles) positively predicted knowledge and use of CIT as well as a favorable attitude towards the use of CIT in education, whereas the local style predicted an unfavourable attitude. The female students reported less knowledge and use of CIT.

Betoret (2007) conducted a study to examine the effect of teachers' and students' thinking styles on students' satisfaction and on their learning process. The sample was made up of 102 instructional psychology college students who responded to two administrations of the Thinking Style Inventory, one about their teacher and one about themselves, to a satisfaction scale referring to the instructional process, and finally to a scale designed to measure the time and effort they devoted to the learning process. Multivariate regression analyses were carried out. Results reveal that both teachers' and students' thinking styles are good predictors of students' satisfaction and their involvement in the learning process.

Gafoor (2007) studied preferred functions of thinking and scope of thinking among secondary school students and its impact on achievement in physics. It was found that boys have the double advantage that they have more of thinking style that favour achievement in physics, and less of the thinking style which demotes achievement. Teachers need to de-emphasize on students' following rules and guidelines, avoid giving structured or fabricated problems, and avoid giving and insisting on directions and orders of how to study, and prescribing rigid rules of evaluation. Instead they need to encourage comparing, analyzing things and making evaluations about quality, worth, effectiveness of existing things and ideas. This will be helpful to adopt more favourable ways of thinking, and thus improve achievement. It was also found that internal thinking favours achievement, especially among boys. However, that style of thinking is less among students in general, more so among boys. In this regard, it was suggested that teachers need to be aware that the present curricular practices being highly favourable for developing external thinking style.

Walters and Mccoy (2007) conducted a study on taxometric analysis of the Psychological Inventory of Criminal Thinking Styles (PICTS) in incarcerated offenders and college students. The Psychological Inventory of Criminal Thinking Styles (PICTS) was administered to 427 (204 male and 223 female) incarcerated offenders and 393 (177 male and 216 female) college students in order to assess the latent structure of the PICTS under conditions conducive to the formation of a pseudo taxon. Results revealed modest to moderate support for a dimensional interpretation of the latent structure of the PICTS, despite wide differences in age, race, criminality, and PICTS scores between the groups in each subsample.

Gafoor and Lavanya (2008) studied Interaction of intelligence with: 1) Functions of, 2) Forms of, 3) Levels of, 4) Scope of, and 5) Leanings of,

Thinking Style in effecting Achievement in Physics of higher secondary school students from two revenue districts of Kerala. Study revealed that Global and Local Thinking Style interacts with intelligence in effecting the achievement in physics. Global thinking style effects high achievement in high intelligent students. High achievement of average and low intelligence pupil need local thinking style. At all the three levels of intelligence External Thinking Style students, have higher Achievement mean scores in Physics. Students who prefer liberal thinking style showed an advantage in achievement in both average and high intelligence levels. Contrarily, at low intelligence level, high achievement corresponds to Conservative Thinking Style. Further studies need to reveal how thinking styles and learning approaches interact in students' understanding of different disciplines.

Kao, Lei and Sun (2008) conducted a study on thinking styles impact on web search strategies. The study aimed at to check whether exist significant relationship between different thinking style levels (global, local) and individual search target types and the different thinking style level conditions can cause significant differences in search behaviour performance regarding maximum depth of exploration, revisited pages, and Web pages visited for refining answers. The findings suggest that high global style users tend to disperse their targets to comprehend the search task while high local style users elaborate on a few specific topics. Furthermore, high global style users glide more, and are less likely to explore an issue in depth compared to high local style individuals. The results confirm that the levels of thinking style (global, local) are an important factor affecting search intention.

Groves, Vance and Paik (2008) conducted a study on the relationship between managerial thinking style and ethical decision-making. The sample used for the study was 200 managers across multiple organizations and industries. Managers predominantly adopt a utilitarian perspective when

forming ethical decisions. The results compared the ethical decision-making of balanced thinking managers and nonlinear thinking managers and found that they were generally inconsistent across the ethics vignettes. Furthermore, those with a predominantly nonlinear thinking style may be more vulnerable to adopting an act utilitarian philosophy in guiding decision-making.

Sternberg, Grigorenko and Zhang (2008) examined styles as a basis for understanding individual differences in how people learn and think and found that there were both ability-based and personality-based styles that matter for instruction and assessment. The study concluded that differentiating instruction in a way that helps students capitalize on their stylistic preferences. While concerning assessment, extensive use of multiple-choice testing in the U.S. clearly benefits executive thinkers. Tests comprised with projects and portfolios would simply benefit to those students having different other styles.

Zhang and Higgins (2008) examined the predictive power of socialization variables for thinking styles among adults in the workplace. One hundred and seventeen managerial personnel (aged between 18 and 55 years) in England responded to the Thinking Styles Inventory—Revised based on Sternberg's theory of mental self-government and to questions concerning two groups of socialization variables: overt and covert. The overt variables included demographic characteristics and actual work environments, while the covert variables were relevant to perceived work environments and self-rated abilities. Results indicated that covert socialization variables were more powerful than were overt variables in predicting thinking styles. The study concluded that educators at various institutional levels should be aware of the relationship between socialization variables and thinking styles, in particular, the predictive power of self-rated abilities for creativity-generating thinking styles.

Huang (2009) examined how the teaching of thinking skills and that of technological skills have been balanced in US new media programs to produce both employable graduates and life-long learners by using content analysis and survey. Findings show that most programs have balanced the two skill sets but that more effort should be made to integrate the teaching of both skill sets in individual courses to give students an expedited, holistic learning experience.

Murphy and Janeke (2009) explored the association between thinking styles and emotional intelligence. The sample comprised 309 students enrolled in final year and postgraduate courses at a South African university, of whom 116 were male and 193 were female and provided Sternberg's Thinking Styles Inventory (TSI) and the Schutte Self-Report Inventory (SSRI) for emotional intelligence. Statistical analysis of the scores of the participants on the two instruments indicates that there is an overlap between the TSI and the SSRI, and suggests that they measure similar constructs. The results show that thinking styles are significant predictors of emotional intelligence and that participants who have high emotional intelligence prefer more complex and creative thinking styles. The correlations found between the TSI and EI measures indicate that the two measures touch on similar areas of unexplained space between cognition and personality, but provide partial support for the validity of the postulated difference between EI defined as a trait and EI defined as an ability.

Gras, Berná and López (2009) conducted a study designed to identify the cognitive dimensions involved in coping and the psychological adjustment of parents of children with myelomeningocele. One hundred and eighteen adults who were parents of children diagnosed with myelomeningocele were selected for the study. Comparison of means and regression analyses were performed to analyze variables and their contribution to parental adjustment.

Significant differences were found for four thinking styles (Externally Focused and Internally Focused, Realistic/Sensing and Imaginative/Intuiting, Thought-Guided and Feeling-Guided, Conservation-Seeking and Innovation-Seeking). The Internally Focused thinking style contributed the most to adjustment. Furthermore, presence of Externally Focused and Innovation-Seeking thinking styles seemed to be associated with the use of active and changing coping strategies such as Confrontation.

Chaturvedi, Chiu and Viswanathan (2009) conducted a study which examined how cultural models of agency and literacy are related to thinking styles. The samples selected for the study included 180 low-income women with low to moderate levels of literacy. Among these women, those with lower literacy levels believed more strongly in negotiable fate. More importantly, among the low literate participants, the belief in negotiable fate was linked to a greater tendency to exhibit decontextualized judgment and rule-based categorization. This result suggested that thinking style may grow out of an adaptive process whereby people with limited resources negotiate control with the harsh environment they face.

Fan and Zhang (2009) investigated the relationships between thinking styles and achievement motivation among Chinese university students. The Thinking Styles Inventory — Revised (TSI-R; Sternberg, Wagner, & Zhang, 2003) and the Achievement Motives Scale (AMS; Gjesme & Nygard, 1970; Ye & Hagtvet, 1988) were administered to 238 Chinese university students from Shanghai, the People's Republic of China. Results largely supported the hypothesis that the more creativity-generating and complex thinking styles (Type I styles) were positively correlated with achievement motivation to approach success (MS), and negatively correlated with achievement motivation to avoid failure (MF). Results partially supported the hypothesis that the more norm-favouring and simplistic thinking styles (Type II styles)

had negative correlation with MS, and positive correlation with MF. The study also found that the situation-/task-dependent thinking styles (Type III styles) were positively correlated with MS, and negatively correlated with MF. The study concluded that concrete and practical learning activities (connected with characteristics of the local and monarchic styles) might contribute to one's achievement.

Zhang (2009) studied the predictive power of thinking styles for anxiety. Three hundred and seventy-eight university students from mainland China responded to the State-Trait Anxiety Inventory and the Thinking Styles Inventory-Revised II. Results showed that, in general, creativity-generating styles (Type I styles) and the external style (a preference for working with others as opposed to working alone) were negatively related to anxiety, whereas the conservative style was positively related to anxiety. Moreover, the hierarchical style (one of the Type I styles) and the external style negatively predicted anxiety beyond sex, whereas the conservative style did so positively.

Khasawneh (2010) conducted a study on thinking style preferences of vocational students at the university level. The primary purpose of this study was to validate the Thinking Style Inventory (TSI) for use in Jordan and the secondary purpose of the study was to determine the thinking style preferences of university vocational students by gender and educational level. Two hundred and eighty students from a public university was chosen for the study. Results of the study supported a seven-factor instrument (legislative, external, executive, global, judicial, local, and monarchic) with forty items. The result showed that vocational students at the university level have a preference for legislative, local, and judicial thinking styles and further, variations in thinking styles are not influenced by gender or educational level.

Zhang (2010) conducted a study on thinking styles and psychosocial development in the Chinese higher education context. The study was aimed at to investigate the predictive power of thinking styles for psychosocial development. Data were collected China (N=362) and Hong Kong (N=117).The instrument used for the study were Thinking Styles Inventory-Revised II (TSI-R2, Sternberg, Wagner, & Zhang, 2007) and Measures of Psychosocial Development (MPD, Hawley, 1988). The theoretical base of TSI-R2 is Sternberg's (1997) theory of mental self-government, while the MPD is rooted in Erikson's (1968) theory of psychosocial development. Hierarchical multiple regression results confirmed that Type I styles (creativity generating characteristics) positively contributed to psychosocial development, whereas Type II styles (norm-favouring features), especially the monarchic and conservative styles, negatively contributed to psychosocial development. Two of the Type III styles (Type III styles may display the characteristics of either Type I or Type II styles, depending on the specific situation) consistently predicted psychosocial development; the external style positively contributed to psychosocial development, whereas the anarchic style did so negatively.

Becerena and Ozdemira (2010) conducted a study aimed to designate the thinking styles and the intelligence types of the prospective preschool teachers and investigated the relationship between these thinking styles and intelligence types. A sample of 75 prospective teachers studying at the first grade of Preschool Education Department at Marmara University participated in the study. The results concluded that the most preferable thinking style among the subscales of Thinking Style Inventory was Legislative style whereas the least preferable one was Oligarchic style. The dominant intelligence among the prospective teachers was the verbal-linguistic intelligence. Further, it was ascertained that there was a statistically

significant relationship between the prospective teachers' thinking styles and intelligence types.

Fan, Zhang and Watkins (2010) examined the incremental validity of thinking styles in predicting academic achievement after controlling for personality and achievement motivation in the hypermedia-based learning environment. Seventy-two Chinese college students from Shanghai, the People's Republic of China, took part in this instructional experiment. The End-Of-Semester test was designed to examine the students' achievement in the course of General Psychology. The results partially supported the hypotheses concerning the relationships between students' Type I and II thinking styles and their academic achievement in Type I test (including analysis, problem-solving, and essay tests) and Type II test (including multiple choice and cloze tests), and showed that some Type III styles were significantly related to their academic achievement. Hierarchical regression analysis indicated that the capacity of thinking styles for explaining and predicting academic achievement was sometimes over and above the sum of personality traits and achievement motivation.

Gafoor and Vidya (2010) examined whether course satisfaction differs significantly between student-teachers who have congruence and divergence with their educators on thinking styles. Conducted on 507 B.Ed. students and 45 of their educators, the study revealed that student-teachers having congruence with educators on executive and internal thinking styles have higher course satisfaction. However, influence of congruence with teacher educators on thinking styles on students' satisfaction with the B.Ed course are not uniform across the various dimensions of the course. Satisfaction with faculty is the most affected by congruence on thinking style. Besides, satisfaction of student teachers with resource facilities provided in B.Ed course requires liberal approach from educators.

Chen (2011) conducted a study on matching teaching strategy to thinking style on learners quality of reflection in online learning environment. This study attempted to explore whether learners' reflection levels can be improved if teaching strategies are adapted to fit with learners' thinking styles in an online learning environment. Three teaching strategies, namely constructive, guiding, and inductive, were designed to match with three thinking styles, namely legislative, executive, and judicial respectively. An online reflection learning system was developed and an experiment was conducted in a sample of 223 graduate and undergraduate students, where the learners were classified into fit or non-fit group in order to analyze whether there was a good fit between the teaching strategies designed by the teacher and the thinking styles of learners. The results of the study revealed that learners who are provided with the adaptive teaching strategies matched with their thinking styles have better progress on reflection levels compared to those who are not. Consequently, it is recommended that instructors should design adaptive teaching strategies for different learning materials and the learners with different thinking styles should be assigned to fitting learning situations using adaptive teaching strategies.

Gafoor and Vidhya (2011) studied preferred styles of thinking of student teachers in Kerala. The more preferred thinking style is Liberal Thinking Style and the least preferred style is seen as Internal thinking style. Under functions, student teachers tend to be Legislative and Executive than Judicial. This implies that the future teachers prefer to decide for themselves what they will do and how to do it. The study suggests possible areas of match-mismatch in thinking styles between students at secondary level and their would-be–teachers.

Samadzadeh, Abbasib and Shahbazzadegan (2011) conducted s study on relationship between psychological hardiness, thinking styles and social

skills with high school student's academic progress in Arak city. The study sample was 210 individuals selected by multi-stage cluster sampling. Styles of thinking and social skills considered as predictor variables and the variable of academic achievement was the criterion. Variables of control in this study were gender, intelligence and educational grade. The results of Pearson correlation coefficient showed that there is significant correlation between psychosocial hardiness and thinking styles and social skills with academic performance progress. The results of multivariate regression analysis showed that there is significant correlation between psychosocial hardiness and thinking styles and social skills with academic performance progress.

Fortunato and Furey (2012) made an examination of thinking style patterns as a function of thinking perspective profile. The study followed a profile approach and examined the extent to which individuals manifest different patterns of thinking styles based on their thinking perspective profile. Six hundred and eighty-three graduate students enrolled in an on-line university participated in the study. Results showed that all univariate tests using profile as the grouping variable were statistically significant. Besides, the pattern of statistically significant post hoc tests shows that individuals manifested different patterns of thinking styles depending on their thinking perspective profile.

Turki (2012) conducted a study on thinking Styles prevailing among the Students of Tafila Technical University, Jordan. The sample consisted of 800 students (male and female) chosen in stratified, clustered and random method. The results indicated that there are no statistically differences on level of attributed to the variable of gender in all the styles except the legislative and judicial style, the differences came to the favour of males. The differences of the executive style came to the favour of females.

Yu and Chen (2012) investigated the relationship between thinking styles and preferred teacher interpersonal behaviour based on the Model for Interpersonal Teacher Behavior (MITB, Wubbels, Créton, & Hooymayers, 1985) among 247 Hong Kong secondary school female students. The Thinking Style Inventory Revised (TSI-R, Sternberg, Wagner, & Zhang, 2003) and the Questionnaire for Teacher Interaction (QTI, Wubbels et al.) were used to measure students' thinking styles and their preferred teacher interpersonal behaviour. Research results showed that Type I global and liberal styles positively and negatively predicted student centered teacher interpersonal behaviour respectively, while Type I legislative and judicial styles negatively and positively predicted teacher-centered interpersonal behaviour respectively. Type II conservative and executive styles positively predicted teacher-centered interpersonal behavior, while Type II executive and conservative styles positively and negatively predicted student-centered interpersonal behaviour respectively.

Alipour, Nila, AkhondyandAerab-sheybanib (2012) conducted study on relationship between handedness and thinking styles in female and male students.Two hundred university students were selected and the Edinburgh handedness inventory and Sternberg-Wagner thinking styles inventory were used for data collection. Significant relationship was found between handedness and legislative, judicial, executive, hierarchical, monarchic, oligarchic, global, local, liberal, and conservative thinking styles. Left-handed participants used legislative, judicial, and hierarchical thinking styles more frequently. Right-handed individuals used executive and local thinking styles more.

Zhang (2012) investigated primarily the relationship between psychosocial development and personality traits. Secondly, the study investigated the predictive power of the successful resolution of the

Eriksonian psycho-social crises for the Big Five personality traits beyond age and gender. Four hundred university students in mainland China responded to the Measures of Psychosocial Development and to the NEO Five-Factor Inventory. Results indicate that the successful resolution of particular Eriksonian crises reversely predicted neuroticism, but positively predicted extraversion, openness, agreeableness, and conscientiousness. Results from step one of hierarchical multiple regressions suggested that age did not make a significant contribution, while gender contributed to agreeableness. Females scored significantly higher than did males.

Heidari and Bahrami (2012) explored the relationship between thinking styles and metacognitive awareness of Iranian EFL university students majoring in English Literature, English Translation, and English Language Teaching. Another purpose of the study was that whether thinking styles could act as the predictors of metacognition. Thinking Styles Inventory (TSI) and Metacognitive Awareness Inventory (MAI) were administered at 100 Iranian senior undergraduate EFL students at the University of Sistan and Baluchestan and Islamic Azad University of Zahedan. The findings of the study revealed that functions and levels of thinking styles were positively correlated with metacognitive awareness. Moreover, significant positive correlations were found between hierarchical, anarchic, and external styles and metacognitive awareness. However, results manifested no significant relationship between monarchic, oligarchic, and conservative styles and metacognitive awareness. The analysis of data also showed positive and significant relationship between the two scopes of thinking styles, namely internal and external, and knowledge of cognition as one of the components of metacognition, whereas merely external style was positively and significantly correlated with the other component of metacognition called regulation of cognition. Furthermore, regression analysis suggested that executive, hierarchical, and conservative styles could predict metacognition.

Fan and Zhang (2014) studied the relationships between parenting styles and thinking stylesafter controlling for students' gender, academic major, and socioeconomic status. Three hundred and forty-oneuniversity students from China responded to the Thinking Style Inventory and the ParentingStyle Index. Results indicated that the dimension of parentalacceptance/involvementwas positively associated with students' creativity-generating styles and styles that could be either creativity-generating or norm-conforming. Furthermore, students who perceived their parentsas using the neglectful parenting style had significantly lower scores in Type I thinking styles than students who perceived their parents as using the other three parenting styles (authoritative, authoritarian, and indulgent).

Studies Relating Big Five Personality Traits to Learning, Thinking and Teaching Styles

Suls, Martin and David (1998) conducted a naturalistic diary study to investigate the degree to which agreeableness and neuroticism moderate emotional reactions to conflict and non-conflict problems. Healthy community residing males made diary recordings at the end of each of 8 successive days concerning problem occurrence and daily mood. Consistent with the predictions based on person-environment fit, participants who scored high in agreeableness experienced more subjective distress when they encountered more inter personal conflicts than did their less agreeable counter parts. Neuroticism was related to a small but consistent reactivity to both conflict and non-conflict problems, contrary to person environment fit.

Busato, Prins, Elshout, and Hamaker, (1999) investigated the relationship between learning styles, the big five personality traits and achievement motivation in higher education. The participants were about 900 university students. The results indicated that Extraversion correlated positively with the meaning directed, reproduction directed and application

directed learning style. Conscientiousness was associated positively with the meaning, reproduction and application directed learning style, and negatively with the undirected learning style. Openness to experience correlated positively with the meaning and application directed learning style, and negatively with the undirected learning style. In addition, it was found that neuroticism correlated positively with the undirected learning style and negatively with the meaning and reproduction directed learning style. Agreeableness was associated positively with the reproduction and application directed learning style. Positive correlations were found for achievement motivation with the meaning, reproduction and the application directed learning style, and a negative one with the undirected learning style.

Zhang and Huang (2001) investigated the relationship between thinking style and big five personality dimensions. The participants were 408 university students (149 male, 259 female) from Shangai, China, responded to the Thinking Style Inventory and NEO Five Factor Inventory. Results showed that thinking style and personality dimensions overlap to a degree. More creativity generating and more complex thinking styles were related to extraversion and openness personality dimensions, and more norm favouring and simplistic thinking styles were related to neurotism.No specific pattern of relationship identified with thinking style to the agreeableness and conscientiousness dimensions.

Roccas, Sagiv, Schwartz, & Knafo, (2002 studied the relationship between big five personality factors and personal values. A sample of 246 students participated in this study. The result showed that Agreeableness correlates most positively with benevolence and tradition values, Openness with self-direction and universalism values, Extroversion with achievement and stimulation values, and Conscientiousness with achievement and conformity values. Correlations of values with facets of the five factors reveal

degrees of the facets and clarify ambiguities in the meanings of the factors. The study concluded that the influence of values on behaviour depends more on cognitive control than does the influence of traits.

Zhang (2003) studied on whether the big five personality traits can statistically predict learning approaches. The samples comprised of 420 (286 female and 134 male) students from Shanghai, PR China. The participants responded to the NEO Five-Factor Inventory and the Study Process Questionnaire. A cross-examination of the results from zero-order correlation, t-tests, multivariate analysis, and multiple-regression procedures indicated that the big five personality traits predict learning approaches to a certain degree. In this prediction, the conscientiousness and openness traits contributed the most in accounting for the differences in students' learning approaches. Conscientiousness is a good predictor for both the deep and the achieving approaches. Openness significantly predicted the deep approach to learning. Neuroticism is a good predictor for the surface approach to learning, whereas the agreeableness trait clearly predicted a learning approach that is not achieving. In addition, no distinct pattern was identified regarding the relationship of extraversion to any of the learning approaches.

Fjell and Walhovd (2004) investigated Sternberg-Wagner Thinking Style Inventory (TSI), with regard to cross-cultural replication and relation to the five-factor personality model (FFM). TSI and NEO-PI-R were administered to 107 participants from USA and 114 participants from Norway. Inter-correlations between NEO-PI-R dimensions and TSI-scales and factors were not very strong, few exceeding 0.40, and the correlations were in predicted directions. Joint factor analyses of TSI and NEO-PI-R showed that TSI covers variance that NEO-PI-R does not explain. Thus, it is argued that the thinking styles give an independent contribution beyond FFM

dimensions. However, TSI did not relate to FFM in the same manner in the two samples.

McDaniel and Grice (2005) conducted a study a repertory grid approach for measuring trait-based self-discrepancies. One hundred twenty-five undergraduate students (69 women and 56 men), 18 to 29 years of age (*M* = 19.6, *SD* = 1.76), participated in this study. Investigators demonstrated an approach by measuring discrepancies between the actual, ideal, and ought selves on the Big Five personality traits and then assessing their relationships with measures of depression, anxiety, and self-esteem. The results indicated that self-discrepancies on the Big Five personality traits were generally not predictive of psychological well-being.

Schmitt, Allik, , McCrae and Benet-Martínez, (2007) investigated the geographic distribution of big five personality traits. The Big Five Inventory (BFI) is designed to measure the high-order personality traits of Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness. The BFI was translated from English into 28 languages and administered to 17, 837 individuals from 56 nations. The resulting cross-cultural data set was used to address the structure of English BFI fully replicate across cultures and the validity of BFI trait profiles of individual nations , and distribution of personality traits throughout the world. The five-dimensional structure was healthy across major regions of the world. Trait levels were related in predictable ways to self-esteem, socio-sexuality, and national personality profiles. People from the geographic regions of South America and East Asia were significantly different in openness from those inhabiting other world regions.

Vaidya *et al (*2008) conducted a study titled as differential stability and individual growth trajectories of big five and affective traits during young adulthood. Big Five and affective traits were measured by using Big Five

Inventory (BFI) and PANAS-X, for assessing individual differences in trait affectivity. Rank-order stability analyses revealed that stability correlations tended to be higher across the second compared to the first retest interval; however, affective traits consistently were less stable than the Big Five.

Zhang (2008) conducted a study entitled as “Revisiting the big six and the big five among Hong Kong university students”. The study was an investigation of the link between Holland’s six career interest types and Costa and McCrae’s big five personality traits in a Chinese context. A sample of 79 university students (21 males and 58 females) from Hong Kong evaluated their own abilities and responded to the Short-Version Self-Directed Search (SVSDS) and the NEO Five-Factor Inventory. Results revealed suggested that career interests and personality traits significantly overlapped, although each construct made a unique contribution to the variance in the data. Hierarchical multiple regressions (with gender and self-rated abilities being controlled) revealed that each of the six career interest types was predicted by at least one of the five personality dimensions. Furthermore, all five personality dimensions served as predictors of particular career interest types, although neuroticism and agreeableness were relatively weak predictors. Among the five personality traits, extraversion proved to be the strongest predictor of career interest type. The extraversion dimension served as the sole predictor of the investigative scale, the primary predictor of the social and enterprising scales, and the secondary predictor of the artistic scale. The second strongest predictor of career interest type was conscientiousness. The third strongest predictor was the openness dimension, which served as the primary predictor of the artistic scale. Furthermore, neuroticism and agreeableness were relatively weak predictors of career interests. Neuroticism served as the secondary predictor of social career interest, whereas agreeableness served as the secondary predictor of the enterprising type.

Joshanloo and Nosratabadi (2009) studied on levels of mental health continuum and personality traits. The main purpose of the study was to investigate the discriminatory power of Big Five personality traits in discriminating among the levels of mental health continuum. Participants were 227 university students (116male and 111 female) at the University of Tehran, Iran. Findings revealed that respondents with different levels of mental health differed significantly on four of the five personality traits (extraversion, neuroticism, conscientiousness, and agreeableness).

Di Fabio, and Palazzeschi (2009) conducted a study which aimed to have a look at the role of emotional intelligence and personality traits in relation to career decision difficulties. The Italian version of the Career Decision Difficulties Questionnaire (CDDQ), the Bar-On Emotional Quotient Inventory: Short (Bar-On EQ-i: S), and the Big Five Questionnaire (BFQ) were administered to 296 interns of the tertiary sector. The result revealed that negative correlation between CDDQ total scale and the three sub-dimensions with extraversion and positive correlation with neuroticism. More highly extroverted and less neurotic individuals seem to perceive less decisional difficulty prior to beginning the career decision-making process and during the process itself. In relation to the agreeableness domain, the results highlighted that agreeableness may possibly facilitate the decision making process in general. The results highlighted the role of emotional intelligence and its relationship with career decision difficulties.

Komarraju *et al.* (2011) studied on the big five personality traits, learning styles, and academic achievement. Three hundred and eight College students completed the Five Factor Inventory and the Inventory of Learning Processes and reported their grade point average (GPA). Result showed that two of the Big Five traits, conscientiousness and agreeableness, were positively related with all four learning styles (synthesis analysis, methodical

study, fact retention, and elaborative processing), whereas neuroticism was negatively related with all four learning styles. In addition, extraversion and openness were positively related with elaborative processing. The Big Five together explained 14% of the variance in grade point average (GPA), and learning styles explained an additional 3%, suggesting that both personality traits and learning styles contribute to academic performance. Besides, the relationship between openness and GPA was mediated by reflective learning styles (synthesis-analysis and elaborative processing).

McCann (2011) studied on relationship between emotional health of the Gallup-Healthways Well-Being Index and the big five personality factors at the American state level. The participants were 619, 397 nationally representative respondents to an internet survey between 1999 and 2005. The socioeconomic status (SES), urban per cent, and white per cent based on 2000 and 2005 data served as demographic details. The findings revealed that neuroticism and SES are the key contributors to emotional health variance and neuroticism makes the largest contribution. States with higher proportions of neurotic individuals and lower SES tended to have populations with poorer emotional health.

Sharpe, Martin and Roth (2011) investigated the relationship between the Big Five factors of personality and dispositional optimism. Data from five samples were collected (Total N = 4332) using three different measures of optimism (Life Orientation Test (LOT), Worldview Personality Inventory Optimism–Pessimism Scale (WVPI-OP) and International Personality Item Pool Optimism Scale (IPIP-OP)) and five different measures of the Big Five. Results indicated those strong positive relationships between optimism and four of the Big Five factors: Emotional Stability, Extraversion Agreeableness, and Conscientiousness. Agreeableness and Conscientiousness explained

additional variance in dispositional optimism over and above Neuroticism and Extraversion, providing evidence for the complexity of optimism.

Barlett and Anderson (2012) studied direct and indirect relations between the big 5 personality traits and aggressive and violent behaviour.Two large samples, Sample 1 consisted of 347 (56% male) and Sample 2 consisted of 873 (40% male) undergraduate students from the Midwestern University participated in this study. The two samples completed three scales namely modified National Youth Survey (NYS) for measuring violent behaviour, Revised Attitude towards Violence Scale (RATVS) and The Buss–Perry Aggression Questionnaire (BPAQ).Besides, Participants in Sample 1 completed the Five Factor Inventory (FFI).Results showed that the paths from Big 5 traits to aggressive behaviour depends on both the specific type of aggressive behaviour and the Big 5 traits measured. Openness and Agreeableness were both directly and indirectly related to physical aggression, but were only indirectly related to violent behaviour. Similarly, Neuroticism was both directly and indirectly related to physical aggression, but not to violent behaviour.

Zhang (2012) explored how psychosocial development and personality traits are related among Chinese university students. Specially, the study investigated the predictive power of the successful resolution of the Eriksonian psycho-social crises for the Big Five personality traits. Four hundred university students in mainland China responded to the Measures of Psychosocial Development and to the NEO Five-Factor Inventory. Results indicated that the successful resolution of particular Eriksonian crises reversely predicted neuroticism, but positively predicted extraversion, openness, agreeableness, and conscientiousness.

Watson (2012) conducted a study entitled as Educating the Disagreeable Extravert: Narcissism, the Big Five Personality Traits, and

Achievement Goal Orientation. Participants in this study were 308 undergraduates who completed the Narcissistic Personality Inventory, the Big Five Inventory, and the Achievement Goal Questionnaire to verify the known relationships between narcissism and the Big Five personality traits of extraversion and agreeableness; to verify the known relationships between the Big Five personality traits of extraversion and agreeableness and goal orientation. Results of the exploratory study indicated that while narcissism does contribute to a performance goal orientation, it is not a substantial variable in determining achievement goal orientation in general.

Albuquerque et al. (2013) explored the mediator effect of personal projects' efficacy on the relationship between Big Five and subjective wellbeing (SWB) components. The SWB was assessed by two self-report measures: Satisfaction with Life Scale (SWLS) and Positive and Negative Affect Schedule (PANAS). The investigators followed a cross-sectional study in which a battery of self-report questionnaires was used to assess personality and SWB in 396 teachers. Analysis results indicated that personal projects' efficacy fully mediated the effects of openness to experience, agreeableness and conscientiousness on life satisfaction and on negative affect. The effects of neuroticism, openness to experience, agreeableness and conscientiousness on positive affect were direct but also indirect, partially mediated by personal projects' efficacy. Neuroticism had a direct and an indirect effect through a decreased personal projects' efficacy on the three components of SWB. Extraversion only directly predicted increased positive affect.

Conclusion

Teaching styles were studied in relation to varied factors like gender, learning and thinking styles, long term classroom outcomes like creativity and classroom discipline, and teachers' philosophy. Even though several studies

were carried out in order to examine teaching styles, studies on teaching styles are too few in Indian context.

Teaching styles are important in classrooms for a variety of reasons.

The reviewed studies reveal why teaching styles are important in classrooms. It is expected that teaching styles affect student outcomes. For example, teaching styles make an impact on improving students' number sense and problem solving performance (Louange, 2007). Zhang (2008) found that the preferences for styles of external, hierarchical, local, and global positively contributed to achievement scores, whereas preferences for other styles of oligarchic, judicial, and conservative did so negatively. Student achievement in all 12 subjects can be predicted particularly by preferred teaching styles, beyond their self-rated abilities. A study on teaching styles on student academic achievement shows that teachers who use some progressive styles of teaching are more likely to have students earn higher grades than teachers who use strictly traditional styles of teaching, whereas teachers who possess traditional styles tend to give out lower grades than teachers who are more progressive (Miller, 2006). Scores of emotional, educational and social adjustments of students taught by teachers using an active teaching style are better than those taught by teachers using inactive teaching styles (Khandaghi & Farasatb, 2011). Conversely, Asadollahia (2012) reported that classroom management orientations could predict 28% of the variance of teaching style.

On finer explanations of impacts of teaching styles on student outcomes, highly structured, well organized, and outcome oriented junior college teachers seemed to maintain student motivation for longer duration (Karsenti, Thierry, Thibert and Gilles, 1994). While organized demeanour of teaching and ratings on the pedagogic competency are strongly correlated, teaching styles focussing on dimensions creativity, dynamism, warmth and acceptance dimensions are weak in relationship to pedagogic competency (Tuckman and Fabian, 1977). Creative teachers were rated significantly

higher by their college coordinators and received a significantly higher grade in student teaching than did the humanistic teachers (Hinely, Galloway, Coody & Sandefur, 1966).

Teachers with more years of experience have teaching style favouring creativity (Raina and Vats 1979). High reward scores were associated with indirect style and high punishment scores and low reward contributed to perceptions of a direct teaching style (Cohen & Amidon, 2004). The presence of effective classroom practices can be explained by a learner-centered teaching style and by good class management skills (Opdenakker & Damme, 2006).The teaching group denoting Knowledge Reproduction Group (KRG) affected negatively pupils' perceived motivational orientations (Salvara, Jess & Abbott, 2006) among physical education teachers and students.

What styles teachers have is not yet settled as an issue.

What styles teachers have is not yet a settled issue. Expert teaching style has the highest mean score and the Delegator teaching style has the lowest mean score; female teachers of mathematics have higher mean scores than male teachers of mathematics in all the five teaching styles. Besides, female teachers of mathematics showed major difference in Personal, Expert, and Facilitator teaching styles. Significant difference has been found between male and female teachers of mathematics only on the Personal teaching style. The common use of lecturing and the preference of the blackboard as the major teaching tool in mathematics education may have shaped participants' responses (Çakmak, 2011), and prospective teachers expect their instructors to use various instructional methods and techniques in their classes.

How can the teaching styles and learning style be optimally matched is yet to gain required explanation.

While the matter of matching optimally teaching and learning styles is yet to gain required explanation, matching teaching style to learning style improves academic success in schools (Dasari, 2006). It was found that

matching teaching and learning styles can help improve students' achievement at higher levels (Zahra Naimieetal, 2010). Even as a positive correlation between student learning style and teacher teaching style (Hussain & Ayub, 2012) is reported, no significant differences were observed between student-teachers and educators' dispositions towards active and inactive teaching styles (Khandaghi & Rajaei, 2011). However, there seems to be a mismatch in teaching/learning styles that may affect the quality of learning. For example, Experts and Delegators may present too many details for the global or visual learner; a Personal teaching style may not offer an intuitive learner enough chance to explore and discover (Provitera & Esendal, 2008). Unfortunately, a mismatch in teaching-learning styles in classrooms is not uncommon. Facilitator and Delegator teaching styles were dominant among lecturers while students prefer collaborative and competitive learning styles (Amira & Jelas, 2010). Among university students in mainland China, there is a strong like for teaching styles that are creativity-generating and that allow collaborative work and, a strong dislike for teaching styles that are norm-conforming (Zhang, 2006).

Factors influencing teaching styles are not satisfactorily explored.

What factors are found to influence teaching styles as such? It is reported that compared to men, women spend a smaller proportion of class time lecturing and a greater proportion of class time on active classroom practices (Laird, 2007). Women exhibited a more learner-centred style than men in terms of their overall teaching style. Instructors who taught in disciplines that aresoft/applied also implemented a more learner-centered style (Barrett, 2004). Male teachers were found to be more dominant and exacting in their teaching style, while female teachers tend to be more informal and open towards students (Lacey, Saleh & Gorman, 1998). 78% college faculty preferred either the provider or enabler style (Lacey, Saleh & Gorman, 1998). Instructors in the hard/pure disciplines too demonstrated a

greater use of a teacher-centered style (Barrett, 2004). Teachers who considered being superior in research-related activities taught more conservatively, whereas teachers who perceived teaching-related activities taught more creatively (Zhang, 2009). Males contribute to perceptions of a direct teaching style, and females contributed to perceptions of indirect teaching style (Cohen & Amidon, 2004). Ngware, Mutisya & Oketch (2012) focused that teaching practice across subjects is inclined towards the command and task styles that do not promote critical thinking among learners.

Teachers identified as low arousal tended to prefer a traditional or formal teaching style and those identified as high arousal tended to prefer an open or informal style of teaching (Nelson & Ratzlaff, 1983). Junior college educators tend to teach the way they prefer to learn irrespective of professional qualification (Galbraith & Sanders, 1987). With regard to the sensing/intuitive dimension, the majority of lecturers' preferred a balanced approach, with the remainder predominantly selecting a sensing style, wherein the majority selected a visual approach as their preferred style of teaching, and the remainder preferred a balance between a visual and verbal approach (Visser, McChlery & Vreken, 2006). Likewise, engineering teachers demonstrate the same level of preference in the reflector and pragmatist categories (Dixon & Woolhouse, 1996). This multiple style preference is seemingly advantageous. A mixture of teaching approaches would seem to be the best way to follow, as each student gains in different ways (Orhun, 2009).Significant relationship existed in the way they perceived to learn and the teaching style utilized (Galbraith & Sanders, 1987) though others report that the relationship between the teachers' and learners' preferred styles was shown to be variable (Dixon & Woolhouse, 1996).

There is no significant relationship between cognitive style and teaching style preferences and no predictor variables could be identified for either cognitive style or teaching style (Kraska & Harris, 2007). NEO Five-

Factor Inventory significantly contributed to teachers' teaching styles as assessed by the Thinking Styles in Teaching Inventory regardless of their gender, educational level, and perceptions of the quality of the students they were teaching (Zhang, 2007). Occupational stress is a significant predictor of teaching style (Zhang, 2007). A stronger feeling of role overload and more frequent use of a rational /cognitive coping strategy were conducive to employing both creativity generating and conservative teaching styles; a stronger feeling of role insufficiency and psychological strain had a negative impact on the use of creative-generating teaching styles. Thus, each educator has a personal and individualized style which is flexible according to the situation, type of the skill, course content, education environment and facilities, and level of the learner (Hossein et al., 2010).

Thinking styles are not well studied in India, especially among teachers.

From the reviewed literature, it is evident that thinking styles have been studied considerably among adult learners especially university students, but to an extent in teacher education scenario. However, many aspects of thinking styles, especially how this construct impacts teachers, their personality and behaviours including their teaching-learning acts in professional practice is yet to get due attention. There are differing views on factors affecting thinking styles among teachers. Zhang & Sternberg (2002) found that six characteristics of in-service teachers were significantly correlated with the thinking styles specified by the theory of mental self-government. These teacher characteristics are gender, professional work experience outside school settings, the degree of enjoying adopting new teaching materials, there is a tendency for using group projects in assessing student achievement, perceived autonomy for determining their teaching contents, and rating of the quality of their students.

Existing literature indicates that at least among vocational students at the university level variations in thinking styles are not influenced by gender

or educational level (Khasawneh, 2010), however, legislative and judicial styles are found by for males whereas executive style favours females (Turki, 2012; Zhang & Sternberg, 2002). Also, thinking styles are not well studied in India, especially among teachers and teacher educators.

Teachers' own thinking styles are bound to affect how they relate to others.

Thinking styles are known to impact learning preferences and psychosocial development. Thinking styles that require more complexity (legislative, judicial, liberal and hierarchical) are significantly positively related to the deep approach scales. Meanwhile, thinking styles that require less complexity (executive and conservative) are significantly positively related to the surface approach scales, and two inventories overlap in at least one dimension underlying their respective theories (Zhang, 2000). Zhang (2010) observed that Type I styles (creativity generating characteristics) positively contributed to psychosocial development, whereas Type II styles (norm-favouring features), especially the monarchic and conservative styles, negatively contributed to psychosocial development. Type III styles may display the characteristics of either Type I or Type II styles, depending on the specific situation.

Teachers' own thinking styles are bound to affect how they relate to others. Type I global and liberal styles predicted teacher interpersonal behavior which is student-centered positively and negatively, respectively. Type I legislative and judicial styles predicted the teacher-centered interpersonal behavior negatively and positively, respectively. Type II conservative and executive styles positively predicted teacher-centered interpersonal behavior, whereas Type II executive and conservative styles positively and negatively predicted student-centered interpersonal behaviour respectively (Yu & Chen, 2012).

Thinking styles impacts teaching-learning scenario, both as a factor that decides quality of educational process and as an outcome of education.

Thinking styles are important in teaching-learning scenario, both as a factor that decides quality of educational process and as an outcome of education. Research indicates that both teachers' and students' thinking styles are good predictors of students' satisfaction and their involvement in the learning process (Betor et, 2007). Thinking styles of individuals surely are part of, and affecting broader and deeper lying personality factors. Zhang (2006) found that eleven thinking style scales (Legislative, Executive, Judicial, Global, Local, Liberal Conservative, Internal, External, Hierarchical and Monarchic) were significantly predicted by particular personality dimensions. Neuroticism and conscientiousness predicted the local style, the neuroticism scale predicted the conservative style, and the extraversion scale predicted the external style. Further, extraversion was significantly correlated with both the global style and the local style. Moreover, thinking styles as measured by Sternberg-Wagner Thinking Style Inventory (TSI), covers variance beyond big five factors of personality as measured by NEO-PI-R as it is found that thinking styles give an independent contribution beyond FFM dimensions (Fjell & Walhovd, 2004).

Researches indicate that thinking styles have predictive power on other personality and performance relevant factors that have significance in professional practice areas like teaching. Such factors studied against thinking styles include emotional intelligence, anxiety, self- esteem, psycho-social development indicators and adjustment. In general, creativity-generating styles (Type I styles) and the external style (a preference for working with others as opposed to working alone) are negatively related to anxiety, whereas the conservative style is positively related to anxiety (Zhang, 2009). Thinking styles and self- esteem overlap among adult students, when age is controlled (Zhang & Postiglione, 2001). An overlap between Thinking Styles Inventory (TSI) and the Schutte Self-Report Inventory (SSRI) for emotional intelligence is also evidenced. Those who have high emotional

intelligence prefer more complex and creative thinking styles (Murphy & Janeke, 2009). Internally-Focused thinking style contributes the most to adjustment while Externally-Focused and Innovation-Seeking thinking styles seem to be associated with the use of active and changing coping strategies such as confrontation (Gras, Berná & López, 2009). Thus, thinking style may be seen as growing out of an adaptive process whereby people with limited resources negotiate control with the harsh environment they face (Chaturvedi, Chiu & Viswanathan, 2009).

Thinking styles are known to influence educational outcomes in adults as well.

Thinking styles are known to influence student achievement in education, including achievement motivation, meta-cognitive awareness, reflection, student approaches to learning including in samples beyond schooling. For example, college students' academic achievements have been found influenced by their thinking styles. Students who prefer to work individually (Internal), and those who do not enjoy creating, formulating, and planning for problem solution and those that have adherence to existing rules and procedures (Executive) obtained higher academic achievement (Garciâ & Hughes, 2000). The capacity of thinking styles for explaining and predicting academic achievement is sometimes over and above the sum of personality traits and achievement motivation (Fana, Zhang & Watkins, 2010). More creativity-generating and complex thinking styles (Type I styles) are positively correlated with achievement motivation to approach success, and negatively correlated with achievement motivation to avoid failure. Conversely, more norm-favouring and simplistic thinking styles (Type II styles) had negative correlation with achievement motivation to approach success, and positive correlation with achievement motivation to avoid failure. Also, situation-/task-dependent thinking styles (Type III styles) are positively correlated with achievement motivation to approach success, and

negatively correlated with achievement motivation to avoid failure (Fan & Zhang, 2009). Thus, particular thinking styles favour student achievement in specific areas of curriculum. Also teaching for the balanced use of thinking styles, involving instruction and assessment of students using a variety of teaching styles rather than just a single style, could enhance students' academic achievement (Zhang, 2005). For this, teachers need to be aware that the present curricular practices are favourable for developing particular thinking styles, for example, external thinking style, but not others (Gafoor, 2007). Learners who are provided with the adaptive teaching strategies matched with their thinking styles have better progress on reflection levels compared to those who are not (Chen, 2011). The effects of thinking styles on learning outcomes need not be the same across the ability groups, as at least Global and Local thinking styles are known to interact with intelligence in effecting the achievement in physics (Gafoor & Lavanya, 2008).

Thinking styles are associated with learning approaches one follows.

Variation in student achievement by thinking style can stem from the observed variation in learning approaches by thinking styles. Surface approach is hypothesized to be positively and significantly correlated with styles associated with less complexity. The deep approach was hypothesized to be positively and significantly correlated with styles associated with more complexity, and negatively and significantly correlated with the executive, conservative, local, and monarchic styles (Zhang & Sternberg, 2000). More creativity generating and more complex thinking styles are significantly related to a holistic mode of thinking, and more norm-conforming and more simplistic thinking styles are significantly related to an analytic mode of thinking (Zhang, 2002). However, thinking styles –learning preference influence cannot be generalised. For example, Zhang (2004) did not observe field-dependence/ independence construct and the thinking style constructs as related.

Another way, to explain difference in the effect of thinking styles on educational outcomes is by the way of difference in metacognition among individuals with different styles of thinking. Metacognitive awareness of learners including of adults vary by thinking style. Functions and levels of thinking styles are positively correlated with metacognitive awareness. Significant positive correlations are found between hierarchical, anarchic, and external styles and metacognitive awareness. Specifically, positive and significant relationship is reported between the two scopes of thinking styles, namely internal and external, and knowledge of cognition which is a component of metacognition. External style of thinking is reportedly positively and significantly correlated with another component of metacognition called regulation of cognition. Executive, hierarchical, and conservative styles could also predict metacognition (Heidari & Bahrami, 2012). Studies have demonstrated that such metacognitive factors do affect specific behaviours like seeking information from web sources and decision-making, which are relevant for teachers. High global style users tend to disperse their targets, in tasks like web search strategies, to comprehend the search task, while high local style users elaborate on a few specific topics. Furthermore, high global style users glide more, and are less likely to explore an issue in-depth compared to high local style individuals (Kao, Lei, & Sun, 2008). Also, persons with a predominantly nonlinear thinking style may be more vulnerable to adopting utilitarian philosophy in guiding decision-making (Groves, Vance & Paik, 2008).

Matching thinking styles of teachers to that of students calls for variety in teaching styles.

Yet another way by which student thinking style brings variation in educational outcomes, including student satisfaction in teacher education contexts, is a match/mismatch of student-teacher thinking style. Prospective preschool teachers are found to prefer particular thinking styles. The most

preferred thinking style among the subscales of Thinking Style Inventory was Legislative style whereas the least preferred was the Oligarchic style. The dominant intelligence among the prospective teachers was the verbal-linguistic intelligence (Becerena & Ozdemira, 2010). Gafoor and Vidhya (2011) observed that the more preferred thinking style is Liberal Thinking Style and the least preferred style is seen as Internal thinking style. Under functions, student teachers tend to be Legislative and Executive than Judicial.

Regardless of age, gender, university class level, and academic discipline, students with different thinking styles had significantly different preferences for particular teaching approaches (Zhang, 2004). Hence, there is sense in the argument that, teaching should be differentiated to help each child capitalize on strengths and compensate for or correct weaknesses in teaching styles as recommended early in the development of thinking style literature (Sternberg & Zhang, 2005). Student–teacher match/mismatch especially on Type I thinking styles (creativity generating styles) play an important role in students' achievement though such effects upon students' achievement are not universal and are bound to vary as a function of academic discipline and subject matter (Zhang, 2006). Student-teachers having congruence with educators on executive and internal thinking styles have higher course satisfaction. However, influence of congruence with teacher educators on thinking styles on students' satisfaction with the undergraduate program in Education is not uniform across the various dimensions of the course. Satisfaction with faculty is the most affected by congruence on thinking style (Gafoor & Vidya, 2010).

Thus available literature linking teaching styles or teaching- learning relevant factors with thinking styles, apart from student achievement and factors related thereof is meagre. Thinking styles are bound to influence teaching styles as it is found that thinking styles have hold on learning approaches, learning outcomes, achievement motivation, metacognitive

behaviour, adoption of varied learning strategies, and emotional intelligence, anxiety, self- esteem, psycho-social development indicators and adjustment. Thinking styles are studied against personality dimensions. Also, teachers' own thinking styles are bound to affect how they relate to others and hence how they teach. However, studies on how thinking styles influence teaching styles remains yet to be explored.

Learning style preferences are studied among a variety of adult learners from varying professional education fields, including education, though majority of such studies are from technical-scientific subjects.

Learning style preferences are studied among a variety of adult learners from varying professional education fields, including education, though majority of such studies are from technical-scientific subjects like merchandising, agriculture teachers, management undergraduates, design education, and nursing. Majority of merchandising students showed strong behavioural (active, sensory, visual, and sequential learning styles) learning preferences (Crutsinger, Knight and Kinley, 2005). 67% of the Agriculture Teachers were field-independent learners and 33% were field-dependent learners; over half of the males were field-dependent while all of the females were field independent; 91% of the pre-service teachers preferred the "enabler" teaching style. Only 9% of the Agriculture Teachers preferred the "provider" teaching style while no subjects preferred the "expert" style or the "facilitator" style (Raven et al., 1993). Among management under graduates, Convergers preferred participating in groups significantly more than did assimilators and Divergers preferred doing practical exercises significantly more than did assimilators (Loo, 2004). Distribution of design students through learning style type preference was more concentrated in assimilating and converging groups (Demirbas and Demirkan , 2007). Nearly half of the students of the science department as well have assimilating style (Can, 2009). Undergraduate learners exhibited a stronger tendency towards Visual

(rather than Verbal), Active (rather than Reflective), Sequential (rather than Global) and Sensing (rather than Intuitive) (Baldwin & Sabry, 2003). Again, greater percentage of marketing students tends to be sensate, visual, and sequential learners (Morrison et al., 2003). Most of the teacher candidates identified strong preferences for Verbal Kinesthetic modality and Tactile or Kinesthetic Perceptual learning was reported as the second most preferred way of learning and auditory modality as their least preferred perceptual modality (Honigsfeld & Schiering, 2004). Expectedly, among geography undergraduates assimilators are the dominant group (Healey, Kneale & Bradbeer, 2005). There were significant trends in designers towards being active and requiring time for contemplation and reflection, and have a low preference towards aural learning (Sayer & Studd, 2006). Among nursing students reflector learning styles preference was the dominant learning styles; followed by the activist learning styles and in diminished frequency the theorist learning styles and pragmatic learning styles (Rassool & Rawaf, 2008). In nursing most common learning styles were introversion, sensing, thinking, and judging (ISTJ) (Li et al., 2008). Coming to teachers, most of the prospective chemistry teachers have Converger and Assimilator learning styles and the most preferred learning activities are doing practical exercises and solving problems (Oskay, 2010).

Academic subject is a significant characteristic that influences learning style

Learning style preferences differ among teachers and these could be accounted for by differences in subject taught (Veronica & Lawrence, 1997). Academic major is a significant student characteristic that influences learning style preference (Shahin, 2008). There is a prevalence of only one learning style per discipline. In commercial studies the reproductive learning style is prevalent, in technical studies the constructive learning style, in health studies the versatile, and in agricultural studies the passive learning style (Slaats et al., 1999). The assimilator learning style had the largest number of

participants for the subject area disciplines of math, science and social studies and for the overall learning style. Diverger had the largest number of participants for English (Jones et al., 2003). Technology education teachers overwhelmingly (69.2%) rated themselves as Common Sense learners. Common Sense learners encourage practical applications, are interested in productivity and competence, and like technical things (Reed, 2000). Higher achievers in foreign language courses tend to like informal classroom designs (Bailey et al., 2000).

Studies show that cognitive styles and preferences are mediated by gender and ethnicity

The few studies available show that cognitive styles and preferences are mediated by gender (Sadler-Smith, 2000). Significantly higher percentage of female students preferred active and sensing learning styles (Dee et al., 2002). Male students are significantly more visual and sequential in their learning than female students; both male and female students are also strongly sensate and active, and active and visual students have a more positive attitude toward group work, and sensate and sequential students have a more negative attitude (Morrison et al. , 2003). Significantly more female students were classified as intuitive observers, whereas significantly the male students were analytical observers (Heffler & Sandell, 2009).

Significant ethnic group differences exist in learning styles (Park, 2000). For example, American pre-service teachers are more experiential-learning-oriented than their Chinese counterparts (You & Jia, 2008). However, each cultural group demonstrated a variety of learning style characteristics, and not all members of the culture could be characterized the same way (Hickson, Land & Aikman, 1994).

Learning style is presumed to affect student outcomes though consistency of learning style in itself is questioned.

A positive correlation between a deep approach to learning and self-assessment skill and a negative correlation between students estimated mark and a surface approach (Cassidy, 2006) is a foregone conclusion. Assimilators appeared to have the highest GPAs, followed by convergers, divergers, and accommodators, (Jones et al., 2003). From another perspective, the most important factor affecting student academic success was student perception of people-oriented leadership from the teacher (Yildirim, 2008). At least among computer programmers sequential learners in general performed better than random learners (Lau & Yuen, 2009). Students with assimilator learning style had fewer misconceptions than students with converger learning style regarding melting and dissolving (Yilmaz, 2012). Cooperative learning represented as an effective strategy for Educational Sciences convergers (Oflaz and Turunc, 2012).But there are aberrations where styles did not influence students' learning experience and learning outcomes (Choi, Lee & Kang, 2009). Consistency of learning styles was also questioned by a few previous researches. Learning styles were significantly different at the two time points and there was a significant relationship between some learning styles and students' age but not with academic achievement (Fleming et al., 2011).

Match between learning style and teaching style is desirable, but found not easily achievable

One of the areas of interest in learning styles is a match between students learning and teachers' instruction and the consequences. Literature is ambiguous on the extent of match in learning styles with instructional styles. For example, professors were more likely to teach in an intuitive style, whereas more students wanted to learn in a sensing style; learning style-teaching style congruency was related to academic performance and to student evaluations of the course and the instructor (Cooper & Miller, 1991). Mismatch is more evidenced in technical-scientific disciplines than in humanities. There was a greater disparity for the engineering group, while for

the humanities group there was only a small disparity. For the engineers this disparity is most apparent in the activist category where students have a high preference their teachers have a low preference. In the theorist category where students have a low preference while their teachers have a high preference (Dixon & Woolhouse, 1996). Others nevertheless see that match existed between student preferences and the preferred teaching style, (Crews et al., 2000). Technical students prefer a lecturer who organizes and structures the presentation significantly more than education students. Education students preferred the clear and interesting instructor, with his/her teacher-centred orientation. There were few discipline-related differences in students' preferences, in spite of the very different learning environments, (Hativa & Birenbaum, 2000). There is significant improvement in learning when instructional strategies are matched to dominant and subdominant learning styles compared to instructional strategies unmatched to learning styles. Learners expressed a higher level of satisfaction with the instruction and greater ease of learning when the instructional strategies matched learning styles, (Ritschel-Trifilo, 2009). Matching the learning styles of students with the appropriate teaching styles can significantly improve students' reflection levels as well (Hsieh, 2011).

Personality traits contributes to learning, thinking and teaching preferences.

Both personality traits and learning styles contribute to academic performance. Besides, the relationship between openness and GPA was mediated by reflective learning styles (Komarraju et al., 2011). It was found that Extraversion correlated positively with the meaning directed, reproduction directed and application directed learning style. Conscientiousness was associated positively with the meaning, reproduction and application directed learning style, and negatively with the undirected learning style. Openness to experience correlated positively with the meaning and application directed learning style. Furthermore, neuroticism correlated positively with the undirected learning style and negatively with the meaning

and reproduction directed learning style (Busato et al., 1999). Conscientiousness is a good predictor for both the deep and the achieving approaches. Openness significantly predicted the deep approach to learning. Neuroticism is a good predictor for the surface approach to learning, whereas the agreeableness trait clearly predicts a learning approach that is not achieving. In addition, no distinct pattern was identified regarding the relationship of extraversion to any of the learning approaches (Zhang, 2003). More creativity generating and more complex thinking styles were related to extraversion and openness personality dimensions, and more norm favouring and simplistic thinking styles were related to Neurotism (Zhang and Huang, 2001). Thinking styles also give an independent contribution beyond FFM dimensions (Fjell & Walhovd, 2004). Curiously, Zhang (2008) identified career interests and personality traits significantly overlapped and concluded that Neuroticism served as the secondary predictor of social career interest.

In summary**,** teaching styles were studied in relation to varied factors like gender, students' Learning Style and thinking styles, long term classroom outcomes like creativity and classroom discipline, and teachers' philosophy. However, studies on teaching styles are too few in Indian context. Previous studies reveal why teaching styles are important in classrooms though what styles teachers have is not yet settled an issue. Nor are factors influencing teaching styles convincingly explored. How can the teaching styles and learning style be optimally matched is yet to gain required explanation. Like, teaching styles, thinking styles also are not well studied in India, especially so among teachers though teachers' thinking styles are bound to affect how they relate to others. One way of how thinking styles affect educational outcomes is through associated learning approaches. Matching thinking styles of teachers to that of students is an often quoted remedy for many maladies of classrooms. This calls for variety in classroom teaching styles which in turn calls for better understanding of dynamics behind teaching styles. Likewise, match between learning style and teaching style is desirable, but found not easily achievable due to lack of understanding of varying style conflicts in

classrooms. Personality traits, especially big-five factors are bound to contribute to learning, thinking and teaching preferences. However, studies of personality factors in relation to teaching-learning situation especially in India are few. Bringing perceptual learning styles, thinking styles, and personality traits together in a research design to explain teaching styles will surely add to further understanding of these style constructs, especially the latter.

In summary**,** teaching styles were studied in relation to varied factors like gender, students' Learning Style and thinking styles, long term classroom outcomes like creativity and classroom discipline, and teachers' philosophy. However, studies on teaching styles are too few in Indian context. Previous studies reveal why teaching styles are important in classrooms though what styles teachers have is not yet settled an issue. Nor are factors influencing teaching styles convincingly explored. How can the teaching styles and learning style be optimally matched is yet to gain required explanation. Like, teaching styles, thinking styles also are not well studied in India, especially so among teachers though teachers' thinking styles are bound to affect how they relate to others. One way of how thinking styles affect educational outcomes is through associated learning approaches. Matching thinking styles of teachers to that of students is an often quoted remedy for many maladies of classrooms. This calls for variety in classroom teaching styles which in turn calls for better understanding of dynamics behind teaching styles. Likewise, match between learning style and teaching style is desirable, but found not easily achievable due to lack of understanding of varying style conflicts in classrooms. Personality traits, especially big-five factors are bound to contribute to learning, thinking and teaching preferences. However, studies of personality factors in relation to teaching-learning situation especially in India are few. Bringing perceptual learning styles, thinking styles, and personality traits together in a research design to explain teaching styles will surely add to further understanding of these style constructs, especially the latter.

CHAPTER III

METHODOLOGY

- *Variables*
- *Objectives*
- *Hypotheses*
- *Tools employed for Data Collection*
- *Samples for the Study*
- *Statistical Techniques used for Analysis*

The objective of the present study is to estimate the influence of select psychological variables on Teaching Style of Secondary School Teachers of Kerala. Accordingly, the secondary school teachers belonging to Government, Aided and Unaided types of management from various schools of Kerala which follow state syllabus were the target population of the study.

Design of the Study

The procedure adopted for the study is descriptive survey. Here a representative sample was administered with rigorously developed or chosen data collection instruments to obtain valid and reliable data that were subjected to statistical analysis. The details of methodology adopted for the study are described under the following major heads:

Variables
Objectives
Hypotheses
Tools employed for Data Collection
Sample for the Study
Statistical Techniques used for Analysis

Variables

The present study is intended to investigate the influence of select psychological variables on Teaching Style of secondary school teachers of Kerala. Variables in this study are categorized into dependent variable and independent variable. These variables are the following.

Dependent Variable

Dependent variable of the present study is the Teaching Style of secondary school teachers of Kerala. The selection of Teaching Style as the dependent variable is based on the following criteria. First, learning and teaching are the important aspects in any type of education, and teaching is the process which facilitates learning. Likewise, teaching style is simply, the personal and classroom behaviours of the teacher, which influence in the process of learning, thinking and accommodating the personality of the child. Secondly, from a teaching perspective, teaching style rather than other style constructs is more significant. Thirdly, teaching style itself has no existence; it becomes active in the process of learning.

In this study, five teaching styles viz., Expert, Formal Authority, Personal, Facilitator and Delegator are considered.

a) Expert

The Expert teacher strives to maintain status as an expert by displaying detailed knowledge. Oversees, guides, and directs students with frequent references to information and facts (Grasha, 2002).

b) Formal Authority

The Formal Authority teacher gains status among learners because of knowledge, position as a senior person in the field, and whatever roles in formal organizations that might be held. Oversees, guides, and directs by referencing the correct, acceptable and standard ways to do something (Grasha, 2002).

c) Personal

The personal model believes in leading through personal examples. Oversees, guides, and directs by showing learners how to do things, by

encouraging them to observe, and thereby emulating the teacher's approach (Grasha, 2002).

d) Facilitator

The facilitator teacher incorporates a flexible approach to lesson delivery. Oversees, guides, and directs learners by asking questions, exploring options, suggesting alternatives, and helping them to develop criteria to make informed choices about courses of action (Grasha, 2002).

a) Delegator

The Delegator style uses a student-centered approach to teaching by encouraging students to take responsibility and initiative while developing their capacity to function in an autonomous fashion (Grasha, 2002).

Independent Variables

There are three sets of independent variables in this study. They are three sets of psychological variables in teachers namely Learning Styles, Thinking Styles and Big five Personality Traits.

(i) Learning Style

One of the independent variables in the present study used is the Learning Styles of secondary school teachers. The scores obtained on four learning styles are considered in this study. For this, the study follows perceptual modality of Reinert's (1976)ELSIE. The learning style types are Visual,Visual Letter, Auditory and Kinesthetic.

a) Visual

Visual learners gain and retain information only after seeing it. They tend to memorize in picture format. Their preference includes the depiction of

information in maps, spider diagrams, charts, graphs, flow charts, labelled diagrams, symbolic arrows, circles, and hierarchies.

b) Visual Letter

This preference is for information displayed as words especially written word. Many students and teachers have a strong preference for this mode. This preference emphasizes text-based input-output, reading and writing in all its forms but especially manuals, reports, essays and assignments.

c) Auditory

This perceptual mode describes a preference for information that is heard or spoken. Learners who have this preference, report that they learn best from lectures, group discussion, radio etc. The aural preference includes talking out loud as well as talking to oneself.

d) Kinesthetic

This modality refers to the perceptual preference related to the use of experience and practice or activity (simulated or real). Although such an experience may invoke other modalities, the key is that people who prefer this mode are connected to reality, either through concrete personal experiences and practice or simulation.

(ii) Thinking Style

The second set of independent variables in the study is the Thinking Styles of secondary school teachers. In the present study, Thinking Style is denoted by thirteen styles of thinking in each of the five dimensions of Thinking Styles, viz., Functions, Forms, Levels, Scope and Leanings of Mental self-government (Strenberg,1997).

a) Legislative

Legislative people like things in their own way. They like creating, formulating and planning things. Legislative people prefer creative and constructive planning based on activities (Sternberg, 1997).

b) Executive

People with executive style are implementers. Executive people like to enforce rules and laws (Sternberg, 1997).An individual with the executive style prefers to work on tasks with clear instructions and structures and to implement tasks with a set of guidelines.

c) Judicial

People with a judicial style like to evaluate rules and procedures and to judge things. Judicial people like to judge both structure and content (Sternberg, 1997).An individual with the judicial style likes to evaluate existing rules, ways, and ideas, and prefers to work on tasks that allow for one's evaluation, as well as preferring to evaluate and judge the performance of other people.

d) Monarchic

Monarchic people tend to be single-minded and have a tendency to see things in terms of their issue (Sternberg, 1997).An individual with the monarchic style prefers to work on tasks that allow complete focus on one thing at a time.

e) Hierarchic

People with a hierarchic style allow for multiple goals that are prioritized and prefer to distribute attention to several tasks that are

prioritized according to one's valuing of the tasks**.** They are priority setters (Sternberg, 1997)**.**

f) Oligarchic

An oligarchic person is a cross between a monarchic person and a hierarchic one (Sternberg, 1997)**.** An individual with the oligarchic style also allows for multiple goals during the same period, but all of which are roughly equal in importance.

g) Anarchic

People with anarchic style tend to be motivated by a wide assortment of needs and goals that are often difficult for others, as well as for themselves, to sort out (Sternberg, 1997). An individual with the anarchic style enjoys working on tasks that allow flexibility as to what, where, when, and how one works, and eschews systems of almost any kind.

h) Global

An individual with the global style prefers to pay more attention to the overall picture of an issue and to abstract ideas. Global people prefer to deal with relatively larger and often abstract issues (Sternberg, 1997).

i) Local

An individual with the local style prefers tasks that require engagement with specific and concrete details. Local people deal with details, sometimes minute ones and often ones surrounding concrete issues (Sternberg, 1997).

j) External

People with external style tend to be more extroverted, people oriented, outgoing, socially more sensitive, and interpersonally more aware (Sternberg,

1997). An individual with the external style prefers to work on tasks that allow for collaborative ventures with other people.

k) Internal

People with internal style tend to be introverted, task-oriented and socially less sensitive than other people (Sternberg, 1997).An individual with the internal style enjoys engaging in tasks that allow him or her to work alone, independently of others.

l) Liberal

Individuals with a liberal style like to go beyond existing rules and procedures and seek to maximize change (Sternberg, 1997).An individual with the liberal style engages in novel and ambiguous tasks.

m) Conservative

Individuals with a conservative style like to adhere to existing rules and procedures and seek to minimize change. An individual with the conservative style avoid ambiguous situations where possible and prefer familiarity in life and work (Sternberg, 1997).

(iii) Big Five Personality Traits

The Big Five Personality Traits used for the present study are five replicable, broad dimensions of personality viz., Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to experience. The factors are identified on the basis of the research of Costa & McCrae's Five Factor Inventory (FFI).

a) Extraversion

Individuals who score high on Extraversion tend to be sociable, talkative, assertive, and active; those who score low tend to be retiring, reserved, and cautious.

b) Agreeableness

Individuals who score high on Agreeableness tend to be good-natured, compliant, modest, gentle, and cooperative. Individuals who score low on this dimension tend to be irritable, ruthless, suspicious, and inflexible.

c) Conscientiousness

Individuals high in Conscientiousness tend to be careful, thorough, responsible, organized, and scrupulous. Those low on this dimension tend to be irresponsible, disorganized, and unscrupulous.

d) Neuroticism

Individuals high on Neuroticism tend to be anxious, depressed, angry, and insecure. Those low on Neuroticism tend to be calm, poised, and emotionally stable.

e) Openness to experience

Individuals who score high on this dimension tend to be intellectual, imaginative, sensitive, and open-minded. Those who score low tend to be down-to-earth, insensitive, and conventional.

Objectives

This study tests the influence of Learning Styles, Thinking Styles and Big Five Personality Traits on Teaching Styles of Secondary School Teachers

of Kerala. To accomplish this major purpose, the study has set the following objectives.

1. To develop and validate a Teaching Style Inventory for measuring the extent of Expert, Formal Authority, Personal, Facilitator and Delegator styles of teaching among Secondary School Teachers of Kerala.
2. To find out the extent of preference for teaching styles viz., Expert Formal Authority, Personal, Facilitator and Delegator, of Secondary School Teachers of Kerala.
3. To test whether preference for teaching styles among secondary school teachers of Kerala differ by groups based on
    a. Gender
    b. Teaching Experience
    c. Teaching Subject
    d. Educational Qualification
    e. Type of Management.
4. To test whether Learning Style preferences [Visual, Visual Letter, Auditory and Kinesthetic] of Secondary School teachers influence their Teaching Styles viz.,
    a. Expert
    b. Formal Authority
    c. Personal
    d. Facilitator
    e. Delegator.
5. To test whether Thinking Style preferences [Legislative, Executive, Judicial, Monarchic, Hierarchic, Oligarchic, Anarchic, Global, Local, External, Internal, Conservative and Liberal] of Secondary School teachers influence their Teaching Styles viz.,
    a. Expert
    b. Formal Authority

c. Personal
d. Facilitator
e. Delegator.

6. To test whether Big Five Personality Traits [Extraversion, Neuroticism, and Openness to Experience, Agreeableness and Conscientiousness] of Secondary School teachers influence their Teaching Styles viz.,
   a. Expert
   b. Formal Authority
   c. Personal
   d. Facilitator
   e. Delegator.

Hypotheses

The following hypotheses were framed and tested for the present study.

1) There is no significant gender- based difference in the disposition of Secondary School Teachers to:

   i. Expert Teaching Style
   ii. Formal Authority Teaching Style
   iii. Personal Teaching Style
   iv. Facilitator Teaching Style
   v. Delegator Teaching Style.

2) There is no significant difference by educational qualification in the disposition of Secondary School Teachers to:

   i. Expert Teaching Style
   ii. Formal Authority Teaching Style
   iii. Personal Teaching Style

iv. Facilitator Teaching Style
v. Delegator Teaching Style.

3) There is no significant difference by teaching-subject in the disposition of Secondary School Teachers to:

i. Expert Teaching Style
ii. Formal Authority Teaching Style
iii. Personal Teaching Style
iv. Facilitator Teaching Style
v. Delegator Teaching Style.

4) There is no significant difference by type of management of school in the disposition of Secondary School Teachers to:

i. Expert Teaching Style
ii. Formal Authority Teaching Style
iii. Personal Teaching Style
iv. Facilitator Teaching Style
v. Delegator Teaching Style.

5) There is no significant difference by teaching experience in the disposition of Secondary School Teachers to:

i. Expert Teaching Style
ii. Formal Authority Teaching Style
iii. Personal Teaching Style
iv. Facilitator Teaching Style
v. Delegator Teaching Style.

6)(i) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Visual Learning.

6)(ii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Visual Letter Learning

6)(iii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Auditory Learning.

6)(iv) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style

b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Kinesthetic Learning.

7)(i) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Legislative Thinking Style.

7) (ii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Executive Thinking Style.

7) (iii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style

c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Judicial Thinking Style.

7) (iv) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Monarchic Thinking Style.

7) (v) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Hierarchic Thinking Style.

7) (vi) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style

d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Oligarchic Thinking Style.

7) (vii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

by their preference for Anarchic Thinking Style.

7) (viii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

by their preference for Global Thinking Style.

7) (ix) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and

e. Delegator Teaching Style

by their preference for Local Thinking Style.

7) (x) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for External Thinking Style.

7) (xi) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Internal Thinking Style.

7) (xii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Conservative Thinking Style.

7) (xiii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Liberal Thinking Style.

8) (i) There exists significant difference by *Extraversion* in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

8) (ii) There exists significant difference by *Neuroticism* in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

8) (iii) There exists significant difference by *Openness to Experience* in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

8) (iv) There exists significant difference by *Agreeableness* in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

8) (v) There exists significant difference by *Conscientiousness* in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

Tools Employed for Data Collection

In the present study, teaching styles are treated as dependent variable and Learning Styles, Thinking Styles and Big Five personality Traits are treated as independent variables.

In order to collect the data needed for the study, the following four standardised tools were required. Of these, two were constructed and standardised as part of this study and two were adopted.

1. Teaching Style Inventory (Gafoor&Babu., 2012)
2. Thinking Style Inventory (Gafoor &Babu., 2013)
3. Calicut University Personality Inventory (Sasidharan, 2007)
4. Edmonds Learning Style Identification Exercise (ELSIE) (Reinert, 1976)

A description of the tools employed for collecting the required data is presented below, in terms of planning, preparing, finalizing, and establishing reliability and validity indices of the tools which were constructed. A brief account of the adopted tools also has been attempted.

Teaching Style Inventory

Teaching Style Inventory is prepared by the investigator under the guidance of supervising teacher for measuring teaching style preference of secondary school teachers. The Teaching Style Inventory follows the theoretical background of Grasha (2002) who describes Teaching Style as a multidimensional construct (Grasha, 2002), rather than a bipolar continuum. Grashaclassified teachers into five categories viz., Expert, Formal Authority, Personal, Facilitator and Delegator. The procedure followed and the techniques used in the development of Teaching Style Inventory are discussed below.

Planning

Before developing the inventory, a careful analysis of different teaching style models was done and the characteristics of each of the teaching style types were observed. Through a careful observation of the review, the investigator realized that, even though teaching style is not a newer concept, most of the classifications were bipolar in nature, especially in the early days

of the development of this construct. Therefore, the investigator tried to understand the actual classroom activities happening today. This was done by using an open ended questionnaire which was administered on 100 teacher trainees. Each teacher trainee was asked to recollect their most favourite teacher during the period of school days. The questions were related with mode of classroom communication, relationship between teacher and student, mode of evaluation, mode of solving classroom problems, attitude towards teaching and lastly, trainees' evaluation about the favourite teacher as a whole. The analysis of the responses helped the investigator to prepare a Teaching Style Inventory satisfying the demands of varied styles of teaching and learning practiced today in secondary schools.

The inventory was developed on the basis of the book "Teaching with Style" authored by Grasha (1996,2002).A careful analysis of the content of the theory was done as the first step. The book follows through areas concerning with identification of the elements of teaching style, the role of self-reflection in enhancing teaching styles, developing conceptual base of teaching styles, integrated model of teaching and learning style, teaching and learning styles in the management of five basic instructional concerns, managing expert, formal authority, personal model styles, developing consultant, resource person, active listening and group processing skills and, lastly, managing the facilitator and delegator styles of teaching.

The inventory was planned in such a way that it could assess each of the five teaching styles viz., Expert, Formal Authority, Personal, Facilitator and Delegator, and each of the teaching style received a score separately. Teaching style inventory would provide with a teaching style profile with a pattern of scores on each of the five styles. Detailed description of each teaching style is included in the review of literature, chapter 2 of this report.

Identification and preparation of a pool of dimensions of teaching

A careful study of the characteristics of each of the teaching styles was done and they were listed out. The inventory consisted of total 100 statements, 20statementsrepresenting each style (Expert, Formal Authority, Personal, Facilitator and Delegator).The items were concerned to identify the individual difference existed in teaching processes related with the pre-instructional, instructional and post instructional phases of teaching. Based on these phases, the classroom activities where teaching styles can be identified are selected. These included teacher's concept about the best quality of student, the responsibility of students, emphasis on classroom communication, emphasis on mode of teaching, purpose of learning, use of textbook, time adjustment, mode of questioning, providing projects, central focus of lesson plan, emphasis on classroom management, importance of examination questions, preferences in evaluation, providing marks, mode of reinforcement, mode of solving classroom problems, prime duty of a teacher, aim of education, mode of manifestation of teaching skill and the evaluation of students' about instructor's teaching.

Identification and preparation of a pool of responses on the dimensions of teaching

Possible responses of teachers on the twenty listed dimensions of teaching were arrived at by analysing teacher responses from three sources. 1) Responses from student teachers on the open ended questionnaire which was administered on 100 teacher trainees mentioned beforehand, 2) the responses elicited from a pilot sample of volunteer teachers (who were briefed about the purpose of the pilot study and who had basic understanding of principles of psycho-educational measurement) to whom the twenty dimensions were presented as a questionnaire asking what they would do on that dimension. 3) Speculating on the possible responses from the experienced teachers whom

the investigator and supervising teacher could identify as obviously belonging to a particular teaching style. The best response representing each style from the three lists of possible responses mentioned above was chosen by judging on the characteristics of each teaching style as enunciated by Grasha (1996, 2002).

On each of the twenty dimensions of teaching, five possible responses were finally listed, one response denoting one among the five teaching styles. Likewise, every aspect of teaching is listed with five responses denoting five teaching styles. Every teacher respondent could make five responses each, one response per each of five teaching styles, by marking a number 1 to 5 indicating the most preferred to the least preferred responses on the given dimension of teaching. In other words, each of the 20 classroom situations listed had five options (items) covering five teaching styles viz., Expert, Formal Authority, Personal, Facilitator and Delegator. The Teaching Style Inventory was prepared in Malayalam language which could be attempted within 40 minutes.

Item writing and editing

Items were prepared carefully by analyzing the characteristics of each teaching style as described by Grasha. The items were subjected to scrutiny by experts who acted as volunteers in the final phase, apart from the supervising teacher. On the basis of their suggestions some responses were modified. Finally ,a total of 100 response statements, five each on 20 dimensions of teaching, were selected for draft inventory.

Pilot testing

A pilot run of the inventory was administered to 32 B.Ed. teacher trainees having teaching experience and professional qualifications, who were undergoing further professional development in a teacher education

programme of India Gandhi National Open University. The draft tool was also tried out with 42 college teachers belonging to different colleges in Kerala, who were requested to make suggestions for improvement after briefing about the purpose of the tool, to improve upon the response pattern and language of the tool. Oral instructions were given and directions for answering were given in the data sheet itself. During the pilot run of the inventory, student teachers were allowed to ask doubts while responding to the test. The investigator was able to rectify and correct the errors and the difficulties faced by the teachers. The average time taken by the students was found out and the time duration had been fixed to be 40 minutes. Thus the test was ready for try out. It was printed in a booklet form along with necessary instructions. A copy of draft test with its response sheet is given in the Appendix A1& A2.

An illustrative item is given as follows:

Situation 1: My emphasis on the mode of teaching

a. Subject-centered
b. Syllabus -centered
c. Life-centered
d. Student-centered
e. Activity- centered

Situation 2: When I conduct evaluation give preference to

a. facts, concepts and ideas
b. learning objectives and exact answers
c. individualized rational responses
d. enough consideration for efforts and experience
e. self designed ideas of students

For the two situations given above responses “a” to “e” corresponds to teaching styles as follows.

“a” corresponds to Expert Teaching Style,

“b” corresponds to Formal Authority Teaching Style,

“c” corresponds to Personal Teaching Style,

“d” corresponds to Facilitator Teaching Style and

“e” corresponds to Delegator Teaching Style.

In the example given above, five possible situations are given to the stem “My emphasis on mode of teaching”. The respondents had to rank the inventory in the order of preference from the most preferred to least preferred. They were requested to mark 1 for most preferred response, 2 for the next suitable response then 3 and 4 for their next choices, and mark 5 for the least preferred response in the boxes against response-statements.

Scoring

There are five response-statements for each teaching situation. The scoring of extent of preference for each teaching style was done by reversing the preference number (1 to 5) given against the respective response-statements and summing the scores on the twenty teaching- learning situations. That is, on each style-specific response to every teaching situation, if order of preference is 1, the score is 5; if order of preference is 2, score is 4; if order of preference is 3, score also is 3; if order of preference is 4, score is 2; and if order of preference is 5, score is 1. There is no total score for the inventory as a whole. Each teaching style gets a separate score.

Try out of the inventory

After fixing the scoring procedure, final draft test was tried on a representative sample of 268 student teachers from three Teachers training Colleges who had completed their practice teaching. Item analysis was conducted on the basis of the try out.

Item analysis

The quality of a test depends on the individual items of which it is composed. So it is necessary to analyze whether each item is useful for the purpose to which it is being constructed. Out of 300 data sheets distributed, 268 fully completed data sheets were used for item analysis. Remaining 32 incomplete data sheets were rejected. The scores obtained for each teaching style were separately noted down. For each teaching style, an upper 27 percent and lower 27 percent of the 268 answer sheets were located. In order to assume whether a statement can discriminate upper and lower groups, test of significance of difference between means for large independent sample is used. For each statement, corresponding mean scores and standard deviation of the upper and lower groups were separately calculated. It was substituted in the formula for the test of significance of means of large independent sample

$$t = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

$\overline{X}_1$= Mean of the upper group of the particular teaching style

$\overline{X}_2$ =Mean of the lower group of the particular teaching style

N_1= Number of students in the upper group

N_2= Number of students in the lower group

σ_1= Standard deviation of the scores of the particular teaching style of the upper group.

σ_2 = Standard deviation of the scores of the particular teaching style of the lower group.

The obtained 't' value for the statement of the draft inventory and the selected situation are shown in Table7.

Table 7

Critical Ratio obtained of items on each Teaching Style

	Five Teaching Styles				
Item No.	Expert	Formal Authority	Personal	facilitator	Delegator
1*	4.25	3.74	-0.33*	5.34	5.34
2*	6.00	1.94*	1.02*	6.90	6.90
3	7.96	3.13	3.44	6.42	6.42
4	7.64	3.15	7.37	4.76	4.76
5	7.30	6.27	5.30	7.42	7.42
6*	4.28	4.79	8.35	0.25*	0.25*
7	2.83	4.99	2.27	3.59	3.59
8*	6.71	1.19*	10.75	1.18*	1.18*
9*	7.12	6.19	6.14	0.56*	0.56*
10	6.05	6.02	8.94	5.54	5.54
11	3.00	5.35	4.19	3.42	3.42
12	7.47	6.72	8.47	4.51	4.51
13	6.38	9.08	4.66	2.87	2.87
14	6.97	7.22	8.31	2.70	2.70
15	7.96	5.63	5.17	8.74	8.74
16	3.05	6.17	2.93	3.70	3.70
17	8.61	5.75	5.29	3.66	3.66
18	10.87	3.48	5.16	6.44	6.44
19	8.76	3.93	2.66	6.50	6.50
20	8.76	5.01	5.78	6.12	6.12

* denotes rejected items.

An item is rejected if any one or more of the response-statements under it fails to significantly discriminate between the upper and lower groups on the select teaching style.

Table 7 shows that 10 responses -statements were eliminated under five classroom situations as they failed to obtain sufficient discrimination power. After item analysis, among the 100 response -statements by 20 classroom situations, 25 responses -statements by 5 classroom situations were eliminated from the tool.

Reliability

The reliability was established by test-retest method.52 teachers selected as the validation sample from Malappuram district completed the inventory within an interval of two weeks. The obtained reliability coefficients are shown in Table 8.

Table 8

Test-Retest Reliability Coefficients of Scores on Teaching Styles obtained using Teaching Style Inventory (TSI)

Sl.No.	Teaching Style	Reliability Coefficient (n=52)
1	Expert	0.98
2	Formal Authority	0.97
3	Personal	0.98
4	Facilitator	0.96
5	Delegator	0.95

Validity

The validity of a test, or any measuring instrument, depends upon the fidelity with which it measures what it purports to measure (Garrett, 2008).

Validity of the present inventory was ensured by Criterion Related Validity. The scores of each teaching style obtained from the Teaching Style Inventory (TSI) developed by the investigator are correlated with "Teaching Style Inventory" developed by Anthony. F. Grasha (1996).The two sets of scores were correlated with criterion scores using Pearson's Product Moment coefficient of Correlation. A sample of 52 teachers from Malappuram district was participated for this purpose. The validity coefficient obtained for each teaching style is shown in the Table 9.

Table 9

Criterion Validity Coefficients of Scores obtained on each teaching Style in the Teaching Style Inventory (TSI), against Teaching Style Inventory of A.F.Grasha scores

Sl.No.	Teaching Styles	Validity Index (r)
1	Expert	0.72
2	Formal Authority	0.72
3	Personal	0.82
4	Facilitator	0.82
5	Delegator	0.75

Table9 shows that the teaching style inventory is a valid and reliable tool for the purpose of studying the five teaching styles namely, Expert, Formal Authority, Personal, facilitator and Delegator styles, specifically designed to quantify the teaching style of secondary school teachers.

Thinking Style Inventory

The Thinking Style Inventory used in this study was intended to measure the profile of thinking styles possessed by a teacher. The inventory was prepared based on the theory of mental self government put forward by

Robert J Sternberg in 1997.The procedure followed and technique used for the development of Thinking Style Inventory are discussed below.

Planning

The inventory was developed on the basis of the book "Thinking Styles" by Sternberg (1997).A careful analysis of the content of the theory of mental self government was done as the first step. The inventory was planned in such a way that it can assess each of the five dimensions viz., Functions, Forms, Level, Scope and Leanings of the mental self government and get a score for each of the thirteen styles separately.

Preparation

A careful analysis of the each of the thinking styles was done and they were listed out. The test was decided to divide into five parts such as each part measures corresponding dimensions given below.

Part I – Functions of Thinking Style

Part II – Forms of Thinking Style

Part III – Levels of Thinking Style

Part IV – Scope of Thinking Style

Part V – Leanings of Thinking Style

Each part measures its component thinking style as shown in Table10

Table 10

Dimensions of Mental Self Government and Thinking Styles Included Under Five Sections of Thinking Style Inventory

Part I	Functions	Legislative Executive Judicial
Part II	Forms	Monarchic Hierarchic Oligarchic Anarchic
Part III	Levels	Global Local
Part IV	Scope	Internal External
Part V	Leanings	Conservative Liberal

(a) Part I :Functions of thinking style

Part I of the Inventory was intended to measure the Functions of Thinking Styles viz., Legislative, Executive and Judicial Thinking Styles. Twenty seven multiple choice items were included. The stem of each statement provided a situation in personal and professional context of the teachers. For each statement, three options A, B and C were given. The teachers were given an opportunity to select any of the three options which might correspond to any of the three styles Legislative, Executive and Judicial.

Eg: I often prefer in my activities

A. Subjectivity

B. Punctuality

C. Objectivity

For this particular statement, while selecting the options,

(A) corresponds to Legislative Style,

(B) corresponds to Executive Style, and

(C) corresponds to Judicial Style.

The options were provided according to the characteristics of each style. There is no right or wrong response.

(b) Part II: Forms of thinking style

Part II was intended to measure Forms of Thinking Styles viz, Hierarchic, Monarchic, Oligarchic and Anarchic. Similar to Part I, the items are of multiple choice type, item stem provides a situation in personal and professional contexts of the teachers. Four options were given for each statement. Teachers had to select any one of the options that they might most likely to do. The four options A, B, C and D correspond to any of the four thinking styles Hierarchic, Monarchic, Oligarchic and Anarchic.

Eg :While selecting teaching aids,I use

A. most appropriate one from the alternatives
B. different teaching aids considerably.
C. in an order of priority

D. in accordance with the interests of me and students.

For the above statement option;

A corresponds to Monarchic Style,

B corresponds to Oligarchic Style,

C corresponds to Hierarchic Style, and

D corresponds to Anarchic Style.

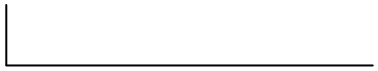
(c) Part III Levels of thinking style

Part III was intended to measure the Levels of Thinking Styles, Global and Local. Since these thinking styles are two extremes in a continuum, a semantic differential scale format was adopted. A statement is provided in relation to daily life situation. The two possible extreme behaviours responding to the situation is placed at the two ends of the continuum. The continuum is divided into five intervals as A,B,C,D and E.The teacher can mark any one of the division according to the frequency of behaviour regarding the situation given in the statement.

e.g. : When I try to solve the disciplinary problems in the classroom,

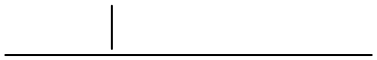
Emphasis give to the common aspect of problems	A B C D E	Care give to each problem separately

A



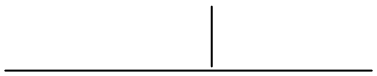
The teacher can mark 'A' if he/she usually or always does the option given at the left end

B



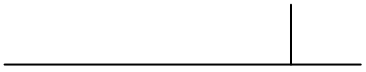
'B' if he/she does the left end option occasionally

C



'C' if he/she prefers right end option and left end option equally

D



'D' if he/she occasionally does the right end option

E

'E' if he/she usually does the right end option

d) Part IV: Scope of thinking styles

Part IV of the inventory was intended to measure the Scope of Thinking Styles,viz; External and Internal Styles. Similar to part III these two styles are placed at the extremes of a continuum. The continuum is divided into five intervals as A,B,C,D and E. The teacher can mark any one of the division according to the frequency of behaviour regarding the situation given in the statement.

Eg: While doing projects, I like to do

Group Projects A B C D E Individual Projects

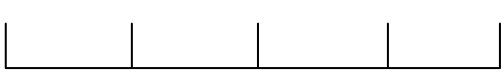
Responses can be made just as in the part III of the inventory.

(e) Part V: Leanings of thinking styles

Part IV of the inventory was intended to measure the Scope of Thinking Styles, viz; Conservative and Liberal. Since the two styles can be placed at the two end of the continuum, procedure followed was the same as that of part III and IV.

Eg : In the rules and regulations of curriculum frame work, I prefer to

Keep as given in it A B C D E Examine reasonable modifications



Responses can be made just as in the part III of the inventory

Item Writing and Editing

Items were prepared by carefully analyzing the characteristics of each thinking style as described by Sternberg. The items were subjected to scrutiny by experts. On the basis of their suggestions some items were selected and some others were modified. Finally, a total of 104 items were selected for draft inventory. Necessary instructions for responding each part were also proposed.

Scoring

Scoring procedure is not uniform throughout the five parts of the inventory. There is no total score for the inventory as a whole. Each thinking style gets a separate score. The scoring procedure for each part is as follows.

(a) Part I Functions of thinking styles

Part I of the inventory measures functions of thinking style,viz; Legislative, Executive and Judicial. The options corresponding to each thinking style in the draft inventory is given in the Appendix B1 and B2.

Out of the 27 statements, the number of statements for which options marked for legislative thinking style is counted and it is assigned as the score for Legislative style of the teachers. Repeat the same procedure for the Executive and Judicial thinking styles to obtain the corresponding scores. Hence Part I - Functions of thinking style- of the inventory provides three separate scores for Legislative, Executive and Judicial styles for every respondent.

(b) Part II Forms of thinking styles

Part II of the inventory measures the forms of thinking styles, viz; Hierarchic, Monarchic, Oligarchic and Anarchic. The scoring procedure is

same as that of Part I. There are 20 items. The options corresponding to each thinking style in the draft inventory is given in the Appendix B1 and B2.

(c) Part III Levels of thinking styles

Part III of the inventory is used to measure level of thinking style i.e., Global and Local. There are 15 items. The items are in the form of a scale, with one end indicating global style and the other end indicating local style. For convenience, this scale is first scored for global thinking with assigned value for scale points starting from 0 (right end) to 4 (left end). The aggregate of the item scores gives the score on global thinking. Thus, total possible score on the global thinking style was 60 in the draft scale (number of items x maximum item score= 15 x 4). Scoring the opposite dimension namely local thinking, was done by inversing the score on global style (i. e., score on local thinking style = 60 - score on Global style).

(d) Part IV Scope of thinking styles

Part IV of the inventory is used to measure scope of thinking style, i.e; External and Internal. There are 15 items. The items are in the form of a scale, with one end indicating external style and the other end indicating internal style. For convenience, this scale is first scored for external thinking with assigned value for scale points starting from 0 (right end) to 4 (left end). The aggregate of the item scores gives the score on external thinking. Thus, total possible score on the external thinking style was 60 in the draft scale (number of items x maximum item score= 15 x 4). Scoring the opposite dimension namely internal thinking, was done by inversing the score on external style (i. e., score on Internal thinking style = 60 - score on External thinking style).

(e) Part V Leanings of thinking styles

Part V of the inventory is used to measure leanings of thinking style, i.e., Conservative and Liberal. There are 17 items. The items are in the form

of a scale, with one end indicating conservative style and the other end indicating liberal style. For convenience, this scale is first scored for conservative thinking with assigned value for scale points starting from 0 (right end) to 4 (left end). The aggregate of the item scores gives the score on conservative thinking. Thus, total possible score on the conservative thinking style was 68 in the draft scale (number of items x maximum item score= 17 x 4). Scoring the opposite dimension namely liberal thinking, was done by inversing the score on conservative style (i. e., score on Liberal thinking style = 68 - score on Conservative thinking style).

Try Out of the Inventory

After fixing the scoring procedure, final draft inventory was tried on a representative sample of 100 M.Ed students (20 Males and 80 Females) from three teacher training colleges under University of Calicut. Item analysis was conducted on the basis of the try out.

Item Analysis

The quality of a test depends on the individual items of which it is composed. In Thinking Style inventory, since Part I and Part II are multiple choice items, the procedure suggested by Ebel (1972) was used for item analysis. The discriminating power of each option indicating a particular thinking style provided for an item was found. This was done to ensure that each of the options provided for an item had the power to discriminate between upper and lower group based on the thinking style for which the option stands for.

For example, for the item analysis of Legislative thinking style for each statement, the number of upper group student teachers who give high preference to Legislative thinking style was found out and noted as ‘U’. Similarly the number of Lower group student teachers who give high

preference to Legislative thinking style was noted as 'L'. The discrimination power (Dp) of options of the particular thinking style was found out by the formula.

$$Dp = \frac{U-L}{N}$$

Where,

U – is the number of student teachers opted the particular thinking style in the upper group (in the example, it is the number of Legislative Thinking Style by the upper group)

L – is the number of student teachers opted the particular thinking style in the lower group (in the example, it is the number of Legislative Thinking Style by the lower group)

N – Number of student teachers in each group

In a similar way, the discriminating power of options pertaining to Executive and Judicial thinking styles under each statement were found out separately. Initially, the investigator decided to select items with a Dp of 0.30 and above. But for some items the option for one among the three styles did not fulfill this criterion. So, for some items the lower limit of Dp was down to 0.24.

The discrimination power of the options given under each statement for Part I of the inventory are given in Table11.

Table 11

Discrimination Power of the Options of Each Item under Part I-Functions of Thinking Styles of Thinking Style Inventory

Item No	Options pertaining to Legislative thinking style	Options pertaining to Executive thinking style	Options pertaining to Judicial thinking style
1*	0.08	0	0
2*	0.12	0.2	0.16
3*	0.24	0.16	0.24
4	0.32	0.28	0.28
5*	0.08	0.4	0.2
6*	0.4	0.12	0.2
7	0.52	0.52	0.31
8*	0.16	0.28	0.28
9*	0	0.28	0.32
10	0.28	0.42	0.32
11	0.28	0.6	0.6
12*	0.2	0	0.2
13	0.26	0.24	0.36
14	0.28	0.32	0.48
15	0.48	0.44	0.24
16*	0.12	0.48	0.28
17	0.24	0.28	0.24
18	0.28	0.24	0.32
19*	0.28	0.44	0.08
20	0.44	0.24	0.24
21	0.36	0.26	0.24
22	0.4	0.48	0.44
23	0.32	0.24	0.24
24*	0.12	0.6	0.44
25*	0.16	0.48	0.32
26	0.24	0.44	0.42
27	0.4	0.36	0.28

* denotes rejected items

A similar procedure was followed for Part II of the inventory- Forms of Thinking Style. The discrimination power of options pertaining to Hierarchic, Monarchic, Oligarchic and Anarchic thinking styles under each statement were found out. If the discriminating power of all four options of a statement was above 0.30, the statement was selected. But for few options the lower limit of Dp was lowered to 0.22.

The discrimination power of the options given under each statement for Part II of the inventory are given in Table 12.

Table 12

Discrimination Power of the Options of Each Item under Part II-Forms of Thinking Styles of Thinking Style Inventory

Item No	Options pertaining to Monarchic thinking style	Options pertaining to Oligarchic thinking style	Options pertaining to Hierarchic thinking style	Options pertaining to Anarchic thinking style
1*	0.04	0.24	0.2	0.04
2	0.32	0.24	0.44	0.08
3	0.28	0.48	0.44	0.28
4*	0.12	0.44	0.12	0.08
5	0.44	0.36	0.28	0.4
6	0.28	0.64	0.44	0.24
7	0.24	0.56	0.22	0.36
8*	0.36	0.28	0.16	0.04
9	0.44	0.6	0.4	0.48
10	0.32	0.32	0.28	0.36
11	0.28	0.4	0.28	0.22
12	0.36	0.26	0.22	0.44
13	0.24	0.24	0.32	0.4
14*	0.08	0.32	0.12	0.32
15	0.44	0.22	0.24	0.32
16	0.36	0.28	0.28	0.36
17	0.52	0.4	0.24	0.24
18	0.56	0.32	0.24	0.26
19*	0.28	0.08	0.12	0.32
20	0.52	0.28	0.28	0.24

* denotes rejected items

Item Analysis of Levels, Scope and Leanings of Thinking Style

Since the parts III,IV and V of Thinking Style Inventory are of scale type, different procedure is followed for item analysis. In order to assure whether a statement can discriminate upper and lower groups, test of significance of difference between means for small and independent sample is used. For each statement, corresponding mean score and standard deviation of upper group and lower group were statistically calculated. It was substituted in the formula for test of significance difference between means as follows

$$t = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

X_1 = Mean of the upper group of the particular thinking style

$\overline{X}_2$ = Mean of the lower group of the particular thinking style

σ_1 = Standard Deviation of the scores of the particular thinking style of the upper group

σ_2 = Standard Deviation of the scores of the particular thinking style of the lower group

N_1 = Number of teachers in the upper group

N_2 = Number of teachers in the lower group.

The‘t’ values for the items on the dimensions of Levels, Scope and Leanings of the draft inventory and the selected items are shown in Table 13.

Table 13

Results of item analysis of Part III, Part IV and Part V (Levels, Scope and Leanings of Thinking Styles) of Thinking Style Inventory

	Critical ratio obtained for each item		
	Part III Levels	Part IV Scope	Part V Leanings
Sl. No.	Global- Local Thinking Styles	External-Internal Thinking Styles	Conservative-Liberal Thinking Styles
1	5.38	3.21	7.95
2	4.75	4.10	4.03*
3	2.53*	3.65	6.20
4	3.08	4.12	7.79
5	6.64	4.26	9.17
6	3.97	6.20	6.81
7	5.55	2.31*	7.45
8	1.29*	4.13	3.39*
9	5.17	3.57	2.22*
10	4.41	3.01	5.40
11	4.99	3.78	7.35
12	5.10	5.58	3.86*
13	1.93*	4.71	5.58
14	7.27	2.24*	4.55
15	4.36	2.29*	0.29*
16			7.95
17			4.03

* denotes rejected items

For the convenience of administration, scoring and interpretation of the tool, the investigator deleted some items with comparatively low discrimination power.

Final Test

After selection of items through item analysis procedure, the final form of inventory was prepared. Out of 94 items from the draft inventory, 66 items were selected and 28 were eliminated. The duration was limited to 40 minutes. The number of statements in each dimension and their maximum score of the Inventory is shown in Table 14. A copy of final form of inventory and its response sheet is given in Appendix B3, B4 and B6.

Table 14

Details of Final Forms of Thinking Style Inventory

Part	Dimensions	No.of Statements	Maximum Score
Part I	Functions	15	15
Part II	Forms	15	15
Part III	Level	12	48
Part IV	Scope	12	48
Part V	Leanings	12	48

Reliability and Validity

There are certain qualities that every measurement device should possess and perhaps the most important technical concepts in measurement are reliability and validity.

Reliability

For the present study Test-Retest method is used to ensure the reliability. Reliability measures provide an estimate of how much variation we might expect under different conditions. The obtained reliability coefficients are shown in Table15.

Table15

Test-Retest Reliability Coefficients of Scores obtained on each Thinking Style in the Thinking Style Inventory

Sl.No.	Thinking Styles	Reliability Coefficient
1	Legislative	0.93
2	Executive	0.93
3	Judicial	0.84
4	Monarchic	0.89
5	Oligarchic	0.90
6	Hierarchic	0.85
7	Anarchic	0.86
8	Global-Local	0.98
9	External-Internal	0.97
10	Conservative-Liberal	0.98

The reliability coefficients reveal that the Thinking Style Inventory is highly reliable to measure the thinking styles.

Validity

The most important quality of a measuring device is its ability to measure what is intended to measure. Validity of the present inventory is ensured by Criterion Related Validity. The scores of each thinking style obtained from the thinking style inventory developed by the investigator is correlated with “Sternberg Wagner Thinking Style Inventory” developed by Robert J Sternberg and Wagner (1992).The two sets of scores were correlated with criterion scores using Pearson’s Product Moment Coefficient of Correlation. A Sample of 52 teachers from three high schools in Malappuram district was used for this purpose. The validity coefficient obtained for each

thinking style is shown in Table 16. The validity coefficients show that the inventory is valid for the purpose of study.

Table 16

Crierion-related Validity Coefficients of Scores obtained on each Thinking Style in the Thinking Style Inventory, against Sternberg-Wagner Thinking Style Inventory Scores

Sl.No.	Thinking Styles	Validity Index (r)
1	Legislative	0.58
2	Executive	0.72
3	Judicial	0.49
4	Monarchic	0.65
5	Oligarchic	0.59
6	Hierarchic	0.54
7	Anarchic	0.37
8	Global	0.70
9	Local	0.67
10	Internal	0.71
11	External	0.64
12	Conservative	0.75
13	Liberal	0.73

Calicut University Personality Inventory (CUPI)

Calicut University Personality Inventory (CUPI) is an adopted inventory, constructed by Sasidharan, (2007). It consists of 166 items under five personality factors viz., Extraversion, Neuroticism, and Openness to Experience, Agreeableness and Conscientiousness.

The extraversion dimension consists of 28 items including 14 negative items. The neuroticism dimension has 38 items. Among them, 9 items are

negative. The openness to experience has 30 items including 7 negative items. Agreeableness dimension consists of 38 items including 26 negative items. Conscientiousness dimension has 38items including 21 negative items. The total number of items was 166 including 77 negative items. The respondents may mark their response by using tick(√) mark or cross(X) mark appropriately.

The details of items are given in Table 17.

Table 17

Item Details of Calicut University Personality Inventory

Sl No.	Dimensions of Personality Traits	Total Items	Negative Items
1	Extraversion	28	14
2	Neuroticism	38	9
3	Openness to Experience	30	7
4	Agreeableness	38	26
5	Conscientiousness	32	21
	Total	166	77

Scoring

The scoring was done by giving one mark for keyed response and zero for incorrect response. For negative items the scoring is in reverse order.

Reliability

As it is a standardised tool, the reliability of the inventory was calculated during the time of preparation. The reliability of each dimension is given in Table 18.

Table 18

Test-Retest Reliability Coefficients of Scores obtained on each Dimensions of Personality Traits in CUPI

Sl No.	Dimensions of Personality Traits	Reliability Coefficient
1	Extraversion	0.82
2	Neuroticism	0.89
3	Openness to Experience	0.90
4	Agreeableness	0.85
5	Conscientiousness	0.81

The reliability coefficients reveal that the Calicut University Personality Inventory is highly reliable to measure the personality traits.

Validity

The author reported rigorous development procedures focusing on each dimension of the scale that ensured face validity for the measures obtained from the present inventory.

Edmonds Learning Style Identification Exercise (ELSIE)

The Edmonds Learning Style Identification Exercise (ELSIE), developed by Harry Reinert (1976) of Edmonds High School, as a tool for diagnosing learning style and to identify which study techniques might be most effective for them. This exercise is based on the hypothesis that methods for the most effective learning differ from individual to individual. This exercise is designed to identify how individuals learn most easily and most effectively. This is not a test. There is no right or wrong answers. No age limit is specified in the tool, but it is used from grade 7 to adults. ELSIE is a quick

and easy means to identify and analyse a postulated relationship between preferences for sensory modality in learning style.

This exercise uses a total of 50 single English words. As a person hears each word, observe his/her own immediate reaction that goes on inside his/her head. While reading each word, that person probably will have (1) activity. or (2) the person will picture the word spelled out in his/her mind, or (3) the person will hear the word and understand its meaning based on the sound, or (4) the person may have some physical or emotional feeling about the word, such as tightening muscles or a feeling such as warmth, sorrow etc. This is not a test of word association. An essential matter is the nature of the person's own immediate and instantaneous reaction to the word itself. It is not important which other word or what picture the person might think of.

In the answer sheet, encircle the number (1 2 3 4) in the appropriate column for the person's own response to each word. Each word will be read only one time, since the important answer is the person's immediate response when he/she first hears the word, not what comes to him/her after the person has thought about it for a few seconds or heard the word a second time.

While considering the types of learning styles,1 indicates a preference for visual learning, 2 indicates a preference for visual letter learning,3 indicates a preference for auditory learning and 4 indicates a preference for kinesthetic learning.

Sample for the study

Selection of the Sample

The population of the study is secondary school teachers of Kerala. Even though the size of the population is finite due to its size, it is impossible and impracticable to study the population characteristics as such. Therefore, it was decided to take representative sample of the population in which

representatives determine the extent of generalizability of the results obtained through the study. In the sample section the investigator had to take decision on three major aspects viz.,

1. Techniques of sampling

2. Classificatory Variables, and

3. Size of the sample.

Techniques of Sampling

The population consisted of a large number of secondary school teachers belonging to different strata such as gender, teaching subject, age, teaching experience, type of management and educational qualifications. Due to this stratification in population, the investigator had to adopt stratified sampling technique. According to Garret(1960) when population is composed of subgroups or strata of different sizes, stratified sampling method is applicable.

Classificatory Variables

The following classificatory variables were taken into consideration while selecting the sample.

1. Gender

2. Type of Management

3. Educational Qualification

4. Teaching Experience

5. Teaching Subject

Gender

The secondary school teachers consisted of both male and female teachers. Many of the studies on teaching style revealed that gender difference

existed between male and females on particular teaching styles. In order to get due representation of gender, the investigator adopted proportionate sampling from male and female teachers.

Type of Management

The schools in Kerala following state syllabus mainly comprised under three types of management viz., government, aided and unaided. The investigator gave due representation to government schools and government aided schools along with unaided schools.

Educational Qualification

The teachers having minimum and additional qualifications have been teaching in secondary schools. The investigator had restricted educational qualification of the sample into graduation and post-graduation along with B.Ed. In the present study, there are 121 graduates and 179 post graduates among secondary school teachers.

Teaching Experience

The school teachers were categorised as novice teachers and experienced teachers. Teaching experience is an important element while manipulating with teaching style. Many studies have given due consideration to teaching experience as a factor of analysis. In the present study, the teaching experience of secondary school teachers was classified into four groups. The first group is novice teachers belonging to the experience upto three years. The teachers with teaching experience between 4 and 8 years were considered as the second group. The third group consisted of teachers with teaching experience between 9 and 15 years and teachers with experience sixteen years and above were treated as fourth group.

Teaching Subject

The teaching subjects of secondary school teachers were considered for the analysis. The teachers were classified into five groups by their teaching

subjects: Language, Physical Science, Biology, Mathematics and Social Science.

Size of the Sample

Considering all the above factors, the study was proposed to be conducted on a sample of 300 secondary school teachers in Kerala. Based on the above factors related to sample, the investigator aimed to select a representative sample of 300 secondary school teachers from 37 high schools of Malappuram, Kozhikode, Palakkad, Wayanad and Kasargod districts. Total 412 data sheets were distributed to secondary school teachers and 300 sheets were returned. The details regarding the obtained final sample is given in Table 19.

Table 19

Break up of the Final sample

Subjects	Gender		Educational Qualification		Type of Management			Total
	Male	Female	Graduates	Post Graduates	Government	Aided	Unaided	
Languages	35	72	33	74	51	50	6	107
Physical Science	28	30	31	27	28	22	8	58
Biology	12	24	13	23	18	13	5	36
Mathematics	18	33	27	24	20	24	7	51
Social Science	17	31	17	31	22	19	7	48
Total	110	190	121	179	139	128	33	300

Table19 shows category wise distribution of the sample. Further, on the basis of years of teaching experience, secondary school teachers are categorized into four groups : up to 3 years as novice teachers (N = 56, 19%),

4-8 years (N = 103, 34%), 9-15 years (N=68, 23%) and 16 years or more (N = 73, 24%).

Statistical Techniques used for Analysis

The following statistical techniques were used for the analysis of data by using SPSS.

Basic Descriptive Statistics

The important statistical indices namely mean, median, mode, standard deviation, skewness and kurtosis of the score distribution for the sample were calculated for both dependent and independent variables.

Tests of Normality

Normal distribution is an underlying assumption of many statistical procedures such as t-test, regression analysis and Analysis of Variance (ANOVA). When the normality assumption is violated, interpretations and inferences may not be reliable or valid. The present study employs three common procedures namely, graphical method (histograms, Box-plots, and Q-Q plots), numerical methods (Skewness and Kurtosis) and formal normality test (Shapiro-Wilk test).

Shapiro-Wilk test is most suitable for small sample size (Shapiro & Wilk, 1965). It is able to detect departures from normality due to either Skewness or Kurtosis, or both (Althouse, Ware, & Ferron, 1998). It is a preferred test because of its good power properties (Mendes & Pala, 2003). The value of Shapiro-Wilk test statistic (S-W) lies between zero and one. Small values of S-W leads to the rejection of normality whereas a value of one indicates normality of the data.

Mean Difference Analysis

Independent sample 't' tests are used to compare the extent of teaching style by the levels of the preferences of learning, thinking and personality traits. Besides, 't' test was also used for identifying gender difference and differences by educational qualification of the teachers.

$$t = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{(\sigma_1^2 / N_1) + (\sigma_2^2 / N_2)}}$$

Where $\overline{X}_1$, and $\overline{X}_2$ are the mean scores of the two groups, σ_1^2 and σ_2^2 the variances of the two groups and N_1 and N_2 the number of cases in each group. If the obtained critical ratio is greater than required value for significance, the mean difference is considered to be significant.

Analysis of Variance

Analysis of variance (ANOVA) is developed by Ronald A. Fisher in the 1930s. However, the name "analysis of variance" came later from John W. Tukey. ANOVA refers to a family of statistical procedures that use the *F* test to test the overall fit of a linear model to the observed data. ANOVA is usually associated with the analysis of experimental research designs. Yet, overall, F test is a test to know whether group means of dependent variable differ across levels of the categorical independent variable or variables. If there is just one independent variable, then the ANOVA is called a one-way ANOVA. If data signifying varied levels of an independent variable are independent (i.e., collected from different units), then an independent ANOVA (between-groups ANOVA) can be used.

ANOVA produce *F* tests that are the ratio of the variance explained or accounted for by a particular effect compared to the variance that cannot be explained by that effect (i.e., error variance). The observed value of *F* is

compared with critical values of *F* from a special distribution known as the *F* distribution. Values of *F* can be expected at certain levels of probability. If the observed value exceeds the critical value for a small probability (typically 0.05), it is inferred that model is a significant fit of the observed data.

For the *F* ratio to be accurate, there are certain assumptions to be met. (1) observations are to be statistically independent, (2) data are to be randomly sampled from the population and measured with interval scale, (3) the outcome variable need be sampled from a normal distribution, and (4) there should be homogeneity of variance.

For testing the influence of teaching experience, type of school management and teaching subject on five teaching styles, One-way ANOVA with 3x4x5 design is used.

CHAPTER IV

ANALYSIS

Preliminary Analysis

Distribution of

- *Teaching styles*
- *Learning Styles*
- *Thinking Styles*
- *Big Five Personality Traits*

Influence of

- *Gender on Teaching Styles*
- *Educational Qualification on Teaching Styles*
- *Teaching Experience on Teaching Styles*
- *Type of School Management on Teaching Styles*
- *Teaching Subject on Teaching Styles*

Influence of

- *Learning Styles on Teaching Styles*
- *Thinking Styles on Teaching Styles*
- *Big Five Personality Traits on Teaching Styles*

Tenability of Hypothesis

Conclusion

The purpose of the present study is to find out the influence of Learning Style, Thinking Style and Big Five Personality Traits on Teaching Style of secondary school teachers. For the analysis of data, the statistical techniques such as Basic Descriptive Statistics, Test of Significance of Differences between mean scores and Analysis of Variance were used.

Preliminary Analyses

In the present study preliminary analysis was used to find out the nature of distribution of the dependent variable Teaching Style and the independent variables namely, Learning style, Thinking Style and Big Five Personality Traits. Preliminary analysis of the scores of independent variables and dependent variable of the study was done to identify the basic properties of the variables for the sample. The analyses were taken up with a view that findings will help to make suitable interpretation of statistical indices of the study.

Both independent and dependent variables are categorical in nature. The dependent variable Teaching Style is categorized as five types. They are Expert, Formal Authority, Personal, Facilitator and Delegator. There are three independent variables namely: Learning Style, Thinking Style and Big Five Personality Traits. The Learning style is categorized as four types and they are visual, visual letter, auditory and kinesthetic. The Thinking style is categorized as thirteen types under five dimensions. The functions of thinking style consist of Legislative, Executive and Judicial Styles. The forms of thinking style consist of Monarchic, Hierarchic, Oligarchic and Anarchic styles. Global and Local styles belong to level dimension of thinking style. The scope of thinking style consists of External and Internal style. Lastly, Conservative and Liberal styles belong to Leanings Style. The Big Five

Personalities Traits consist of five basic factors which describe most personality traits: Extraversion, Neuroticism, and Openness to Experience, Agreeableness, and Conscientiousness.

Distribution of Teaching Styles among Secondary school Teachers

Preliminary statistics like Mean, Median, Mode, Standard Deviation, Skewness and Kurtosis of the variables Teaching Style was calculated. These are presented in Table 20.

Table 20

Important Statistical Constants of the Distribution of Scores on Five Teaching Styles of Secondary School Teachers

Teaching Styles	Mean	Median	Mode	SD	Skewness[a]	Kurtosis[b]	s-w[c]
Expert	25.95	25	24	8.79	.17	-.33	.98
Formal Authority	28.01	28	35	8.20	-.11	.00	.99
Personal	31.22	31	30	7.55	-.16	-.52	.98
Facilitator	35.55	36	36	7.04	-.03	-.33	.99
Delegator	29.31	29	35	8.86	-.06	-.73	.98

[a]SE_{Sk}=.14; [b]SE_{Ku}=.28; [c]*df*=299

Table 20 reveals that the Mean (25.95),Median(25) and Mode(24) of Expert Teaching Style of Secondary School teachers are nearly equal. The indices of skewness (.17, SE=.14) and kurtosis (-.33, SE= .28) indicate slightly positively skewed, platykurtic distribution of Expert Teaching Style. The Shapiro-Wilk statistic of normality (S-W=.98,df=300, p>.05) suggests that normality is a reasonable assumption for Expert Teaching Style.

The Mean (28.01),Median (28) and Mode (35) of Formal Authority Teaching Style of Secondary School teachers are nearly equal. The indices of

skewness (.-11, SE=.14) and kurtosis (.00, SE= .28) indicate slightly negatively skewed, mesokurtic distribution of Formal Authority Teaching Style. The Shapiro-Wilk statistic of normality (S-W=.99,df=299, p>.05) suggest that normality is a reasonable assumption for Formal Authority Teaching Style.

The Mean (31.22),Median (31) and Mode (30) of Personal Teaching Style of Secondary School teachers are nearly equal. The indices of skewness (-.16, SE=.14) and kurtosis (-.52, SE= .28) indicate slightly negatively skewed, platykurtic distribution of Personal Teaching Style. The Shapiro-Wilk statistic of normality (S-W=.98, df=299, p>.05) suggests that normality is a reasonable assumption for Personal Teaching Style.

The Mean (35.55),Median (36) and Mode(36) of Facilitating Teaching Style of Secondary School teachers are nearly equal. The indices of skewness (-.03, SE=.14) and kurtosis (-.33, SE= .28) indicate slightly negatively skewed, platykurtic distribution of Facilitating Teaching Style. The Shapiro-Wilk statistic of normality (S-W=.99, df=299, p>.05) suggests that normality is a reasonable assumption for Facilitating Teaching Style.

The Mean (29.31), Median (29) and Mode (35) of Delegating Teaching Style of Secondary School teachers are nearly equal. The indices of skewness (-.06, SE=.14) and kurtosis (-.73, SE= .28) indicate slightly negatively skewed, platykurtic distribution of Delegating Teaching Style. The Shapiro-Wilk statistic of normality (S-W=.98, df=299, p>.05) suggests that normality is a reasonable assumption for Delegating Teaching Style.

The ratio between skewness and its standard error, and that between kurtosis and its standard error are less than 1.96 for each of the style namely Expert, Formal Authority, Personal, Facilitator and Delegator. Therefore it

can be concluded that the distribution of scores for each teaching styles are normal.

In addition to the indices of distribution provided in Table, Figure1,Figure 2, Figure 3, Figure 4, and Figure 5shows the histograms of the distribution with the normal curve for five Teaching Styles.

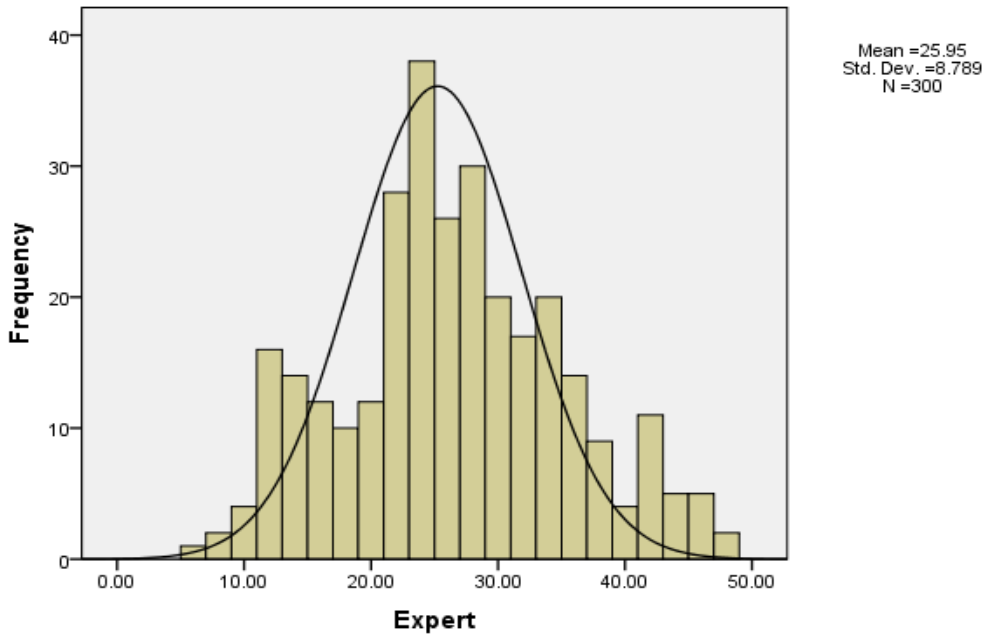


Figure 1: Histogram with the normal curve of Expert Teaching Style

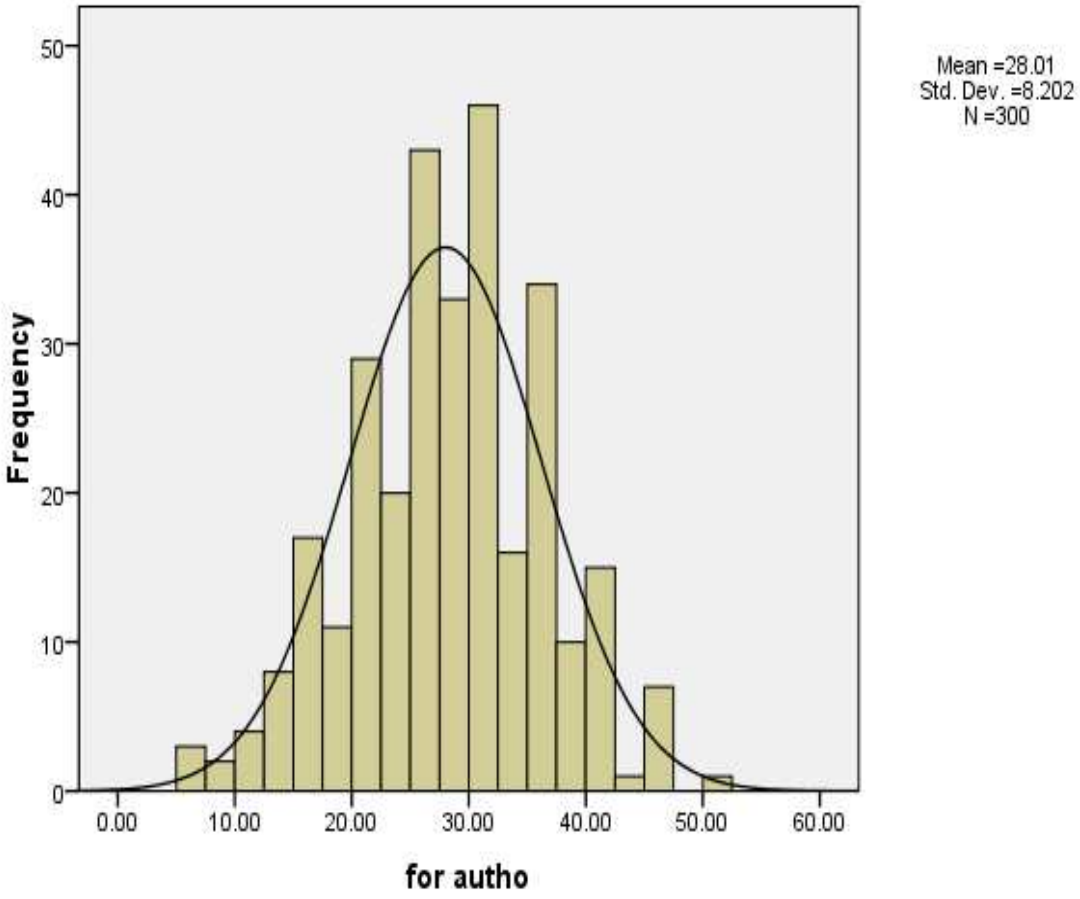


Figure 2: Histogram with the normal curve of Formal Authority Teaching Style

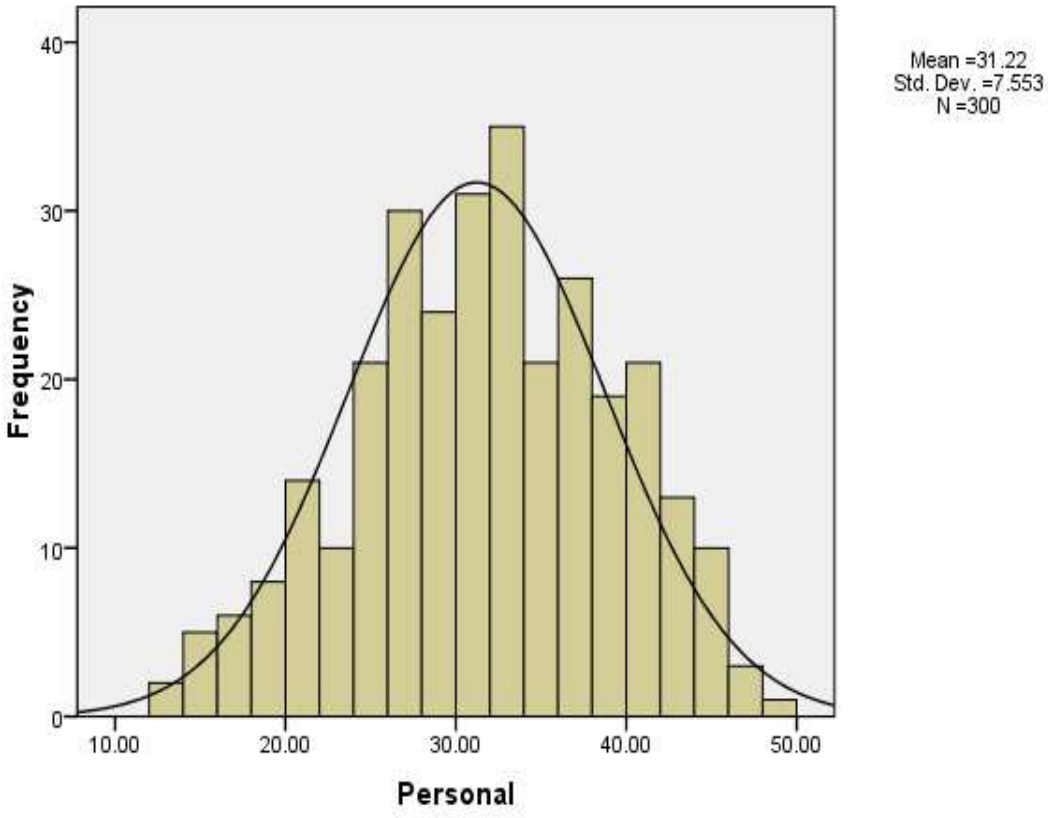


Figure 3: Histogram with the normal curve of Personal Teaching Style

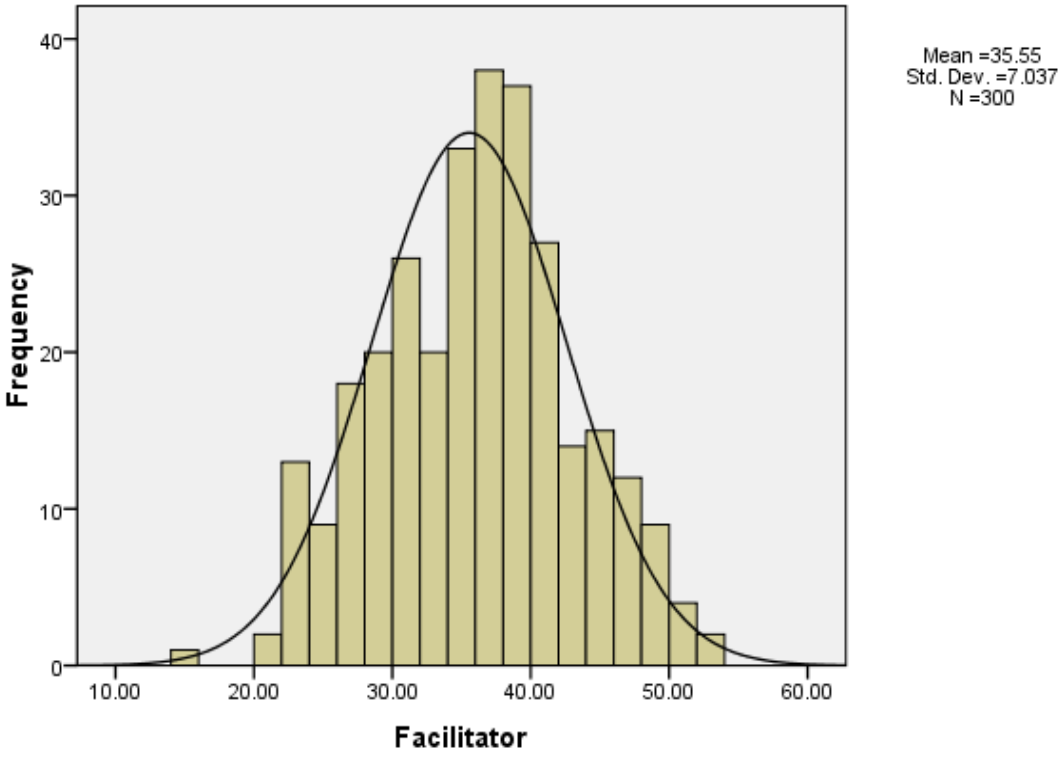


Figure 4: Histogram with the normal curve of Facilitator Teaching Style

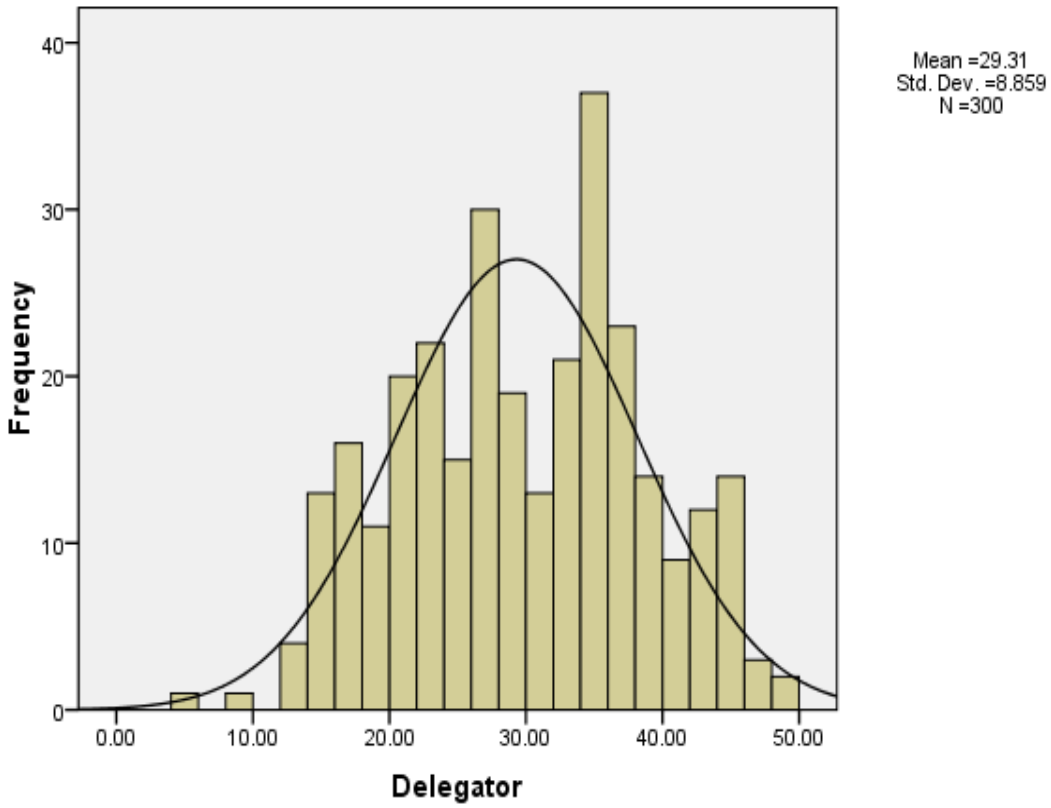


Figure 5: Histogram with the normal curve of Delegator Teaching Style

Distribution of Learning Styles among Secondary School Teachers

Preliminary statistics like Mean, Median, Mode, Standard Deviation, Skewness and Kurtosis of the variable Learning Styles were calculated. These are presented in Table 21.

Table 21

Important Statistical Constants of the Distribution of Scores on Four Learning Styles of Secondary School Teachers

Learning Style	Mean	Median	Mode	SD	Skewness[a]	Kurtosis[b]
Visual	18.63	18	15	6.40	.16	.50
Visual Letter	6.58	6	0	5.43	.75	-.01
Auditory	11.76	12	13	6.31	.36	.28
Kinesthetic	13.03	13	13	6.95	.46	.55

[a]SE_{Sk}=.14; [b]SE_{Ku}=.28

Table 21reveals that the Mean (18.63),Median(18) and Mode(15) of Visual Learning Style of Secondary School teachers are nearly equal. The indices of skewness (.16, SE=.14) and kurtosis (-.14, SE= .28) indicate slightly positively skewed, leptokurtic distribution of Visual Learning Style of Secondary School teachers.

Table 21reveals that the Mean (6.58),Median(6) and Mode(0) of Visual Letter Learning Style of Secondary School teachers are not equal. The indices of skewness (.75, SE=.14) and kurtosis (-.01, SE= .28) indicate slightly positively skewed, nearly mesokurtic distribution of Visual Letter Learning Style of Secondary School teachers.

Table 21 reveals that the Mean (11.76),Median(12) and Mode(13) of Auditory Learning Style of Secondary School teachers are nearly equal. The indices of skewness (.36, SE=.14) and kurtosis (.28, SE= .28) indicate slightly positively skewed, leptokurtic distribution of Auditory Learning Style of Secondary School teachers.

Table21 reveals that the Mean (13.03),Median(13) and Mode(13) of Kinesthetic Learning Style of Secondary School teachers are nearly equal. The indices of skewness (.46, SE=.14) and kurtosis (.55, SE= .28) indicate

slightly positively skewed, leptokurtic distribution of Kinesthetic Learning Style of Secondary School teachers.

The ratio between skewness and its standard erroris greater than 1.96 for the learning style namely Visual Letter, Auditory and Kinesthetic. Therefore it can be concluded that the distribution of scores for each learning styles are not normal.

Distribution of Thinking Styles

The important statistical indices namely**,** mean, median, mode, standard deviation, skewness and kurtosis of the independent variable Thinking Styles were computed. These are presented in Table 22.

Table 22

Important Statistical Constants of the Distribution of Scores on Thirteen Thinking Styles of Secondary School Teachers

Thinking Style	Mean	Median	Mode	SD	Skewness[a]	Kurtosis[b]
Legislative	4.27	4	4	1.93	0.16	-0.32
Executive	5.22	5	4	2.02	0.33	0.33
Judicial	5.50	5	5	1.82	0.16	0.42
Monarchic	4.09	4	3	2.19	0.48	0.16
Oligarchic	3.33	3	3	1.67	0.65	0.86
Hierarchic	5.89	6	6	2.56	0.12	-0.19
Anarchic	1.69	1	0	1.76	1.26	1.65
Global	33.27	33	28	8.75	0.19	-0.01
Local	26.73	27	32	8.75	-0.19	-0.01
External	33.99	33	29	8.24	0.37	-0.23
Internal	26.01	27	24	8.24	-0.37	-0.23
Conservative	28.98	27	24	10.05	0.65	-0.13
Liberal	31.02	33	36	10.05	-0.65	-0.13

[a]SE_{Sk}=.14; [b]SE_{Ku}=.28

Table22 reveals that the Mean (4.27),Median(4) and Mode(4) of Legislative Thinking Style of Secondary School teachers are nearly equal.

The indices of skewness (.16, SE=.14) and kurtosis (-.32, SE= .28) indicate slightly positively skewed, mesokurtic distribution of Legislative Thinking Style of Secondary School teachers.

Table22 reveals that the Mean (5.22),Median(5) and Mode(4) of Executive Thinking Style of Secondary School teachers are nearly equal. The indices of skewness (.33, SE=.14) and kurtosis (.33, SE= .28) indicate positively skewed, leptokurtic distribution of Executive Thinking Style of Secondary School teachers.

Table22 reveals that the Mean (5.50),Median(5) and Mode(5) of Judicial Thinking Style of Secondary School teachers are nearly equal. The indices of skewness (.16, SE=.14) and kurtosis (.42, SE= .28) indicate slightly positively skewed, platykurtic distribution of Judicial Thinking Style of Secondary School teachers.

Table22 reveals that the Mean (4.09),Median(4) and Mode(3) of Monarchic Thinking Style of Secondary School teachers are nearly equal. The indices of skewness (.48, SE=.14) and kurtosis (.16, SE= .28) indicate positively skewed, platykurtic distribution of Monarchic Thinking Style of Secondary School teachers.

Table22 reveals that the Mean (3.33),Median(3) and Mode(3) of Oligarchic Thinking Style of Secondary School teachers are nearly equal. The indices of skewness (.65, SE=.14) and kurtosis (.86, SE= .28) indicate positively skewed, platykurtic distribution of Oligarchic Thinking Style of Secondary School teachers.

Table22 reveals that the Mean (5.89),Median(6) and Mode(6) of Hierarchic Thinking Style of Secondary School teachers are nearly equal. The indices of skewness (.12, SE=.14) and kurtosis (-0.19, SE= .28) indicate slightly positively skewed, nearly mesokurtic distribution of Hierarchic Thinking Style of Secondary School teachers.

Table22 reveals that the Mean (1.69),Median(1) and Mode(0) of Anarchic Thinking Style of Secondary School teachers are nearly equal. The indices of skewness (1.26, SE=.14) and kurtosis (1.65, SE= .28) indicate highly positively skewed, leptokurtic distribution of Anarchic Thinking Style of Secondary School teachers.

Table22 reveals that the Mean (33.27),Median(33) and Mode(28) of Global Thinking Style of Secondary School teachers are nearly equal. The indices of skewness (.19, SE=.14) and kurtosis (-.01, SE= .28) indicate slightly positively skewed, mesokurtic distribution of Global Thinking Style of Secondary School teachers.

Table22 reveals that the Mean (26.73),Median(27) and Mode(32) of Local Thinking Style of Secondary School teachers are nearly equal. The indices of skewness (-.19, SE=.14) and kurtosis (-.01, SE= .28) indicate slightly negatively skewed, mesokurtic distribution of Local Thinking Style of Secondary School teachers.

Table22 reveals that the Mean (33.99),Median(33) and Mode(29) of External Thinking Style of Secondary School teachers are nearly equal. The indices of skewness (.37, SE=.14) and kurtosis (-.23, SE= .28) indicate positively skewed, platykurtic distribution of External Thinking Style of Secondary School teachers.

Table22 reveals that the Mean (26.01),Median(27) and Mode(24) of Internal Thinking Style of Secondary School teachers are nearly equal. The indices of skewness (-.37, SE=.14) and kurtosis (-.23, SE= .28) indicate negatively skewed, platykurtic distribution of Internal Thinking Style of Secondary School teachers.

Table22 reveals that the Mean (28.98),Median(27) and Mode(24) of Conservative Thinking Style of Secondary School teachers are nearly equal. The indices of skewness (.65, SE=.14) and kurtosis (-.13, SE= .28) indicate

positively skewed, platykurtic distribution of Conservative Thinking Style of Secondary School teachers.

Table22 reveals that the Mean (31.02),Median(33) and Mode(36) of Liberal Thinking Style of Secondary School teachers are nearly equal. The indices of skewness (-.65, SE=.14) and kurtosis (-.13, SE= .28) indicate negatively skewed, platykurtic distribution of Liberal Thinking Style of Secondary School teachers.

The ratio between skewness and its standard error is greater than 1.96 for the thinking style namely Executive, Monarchic, Oligarchic, External, Internal, Conservative and Liberal. Therefore it can be concluded that the distribution of scores for each learning styles are not normal.

Indices of Distribution of Big Five Personality Traits

The important statistical indices namely mean, median, mode, standard deviation, skewness and kurtosis of the independent variable Big Five Personality Traitswere computed. These are presented in Table 23.

Table 23

Important Statistical Constants of the Distribution of Scores on Big Five Personality Traits of Secondary School Teachers

Big Five Personality Traits	Mean	Median	Mode	SD	Skewness[a]	Kurtosis[b]
Extraversion	17.87	18	21	4.83	-.36	-.28
Neuroticism	7.25	5	2	7.10	1.24	.66
Openness to Experience	15.20	15	14	4.17	.14	-.28
Agreeableness	26.72	27	30	6.12	-.34	-.42
Conscientiousness	21.47	22	20	5.02	-.23	-.69

[a]SE_{Sk}=.14; [b]SE_{Ku}=.28

Table 23reveals that the Mean (17.87),Median(18) and Mode (21) of Extraversion of Secondary School teachers are nearly equal. The indices of skewness (-.36, SE=.14) and kurtosis (-.28, SE= .28) indicate negatively skewed, platykurtic distribution of Extraversion of Secondary School teachers.

Table 23reveals that the Mean (7.25),Median(5) and Mode (2) of Neuroticism of Secondary School teachers are nearly equal. The indices of skewness (1.24, SE=.14) and kurtosis (.66, SE= .28) indicate highlypositively skewed, leptokurtic distribution of Neuroticism of Secondary School teachers.

Table23reveals that the Mean (15.20),Median(15) and Mode (14) of Openness to Experience of Secondary School teachers are nearly equal. The indices of skewness (.14, SE=.14) and kurtosis (-.28, SE= .28) indicate slightly positively skewed, platykurtic distribution of Openness to Experience of Secondary School teachers.

Table23reveals that the Mean (26.72),Median(27) and Mode (30) of Agreeableness of Secondary School teachers are nearly equal. The indices of skewness (-.34, SE=.14) and kurtosis (-.42, SE= .28) indicate negatively skewed, platykurtic distribution of Openness to Experience of Secondary School teachers.

Table23reveals that the Mean (21.47),Median(22) and Mode (20) of Conscientiousness of Secondary School teachers are nearly equal. The indices of skewness (-.23, SE=.14) and kurtosis (-.69, SE= .28) indicate slightly negatively skewed, platykurtic distribution of Conscientiousness of Secondary School teachers.

From the preliminary analysis, it can be concluded that Teaching Styles have satisfied with the properties of normality. But some of the types of each independent variable are not satisfied with the properties of normality.

So the investigator has categorized the total sample into two groups namely low and high on the basis of quartiles. The details of the percentile scores selected for categorization are given below in Table 24.

Table 24

Cut-Points of Scores for Grouping the Sample as Low (≤ 25th Percentile) and High (> 75th Percentile) on the 22 Select Psychological Variables

Independent Variables	Percentile Scores		
	25th	50th	75th
Visualization	15	18	22
Written Word	2	6	11
Listening	7	12	16
Activity	8	13	17
Legislative	3	4	6
Executive	4	5	6
Judicial	4	5	7
Monarchic	2	4	5
Oligarchic	2	3	4
Hierarchic	4	6	8
Anarchic	0	1	3
Global	28	33	38
Local	22	27	32
External	29	33	39
Internal	21	27	31
Conservative	22	27	36
Liberal	24	33	38
Extraversion	15	18	21
Neuroticism	2	5	10
Openness to Experience	12	15	18
Agreeableness	22	27	31
Conscientiousness	17	22	25

Teaching Style Preferences of Secondary School Teachers

An objective of the study was to find out the Teaching Style Preference of Secondary School Teachers for the total sample. For this, the mean and standard deviation of each of the five Teaching Styles were given. Details are summarized in Table 25.

Table 25

The Extent of Preference for Teaching Styles of Secondary School Teachers

Teaching Styles	N	Mean	SD
Expert	300	25.95	8.79
Formal Authority	300	28.01	8.20
Personal	300	31.22	7.55
Facilitator	300	35.55	7.04
Delegator	300	29.31	8.86

Table25 reveals that the mean scores obtained for the five teaching styles of secondary school teachers of Kerala are Expert (M=25.95,SD=8.79),Formal Authority(M=28.01,SD=8.20),Personal(M=31.22, SD=7.55), Facilitator (M=35.55, SD=7.04) and Delegator (M= 29.31,SD=8.86). The mean scores revealed that the most preferred Teaching Style of secondary school teachers is Facilitating Style, followed by Personal Style. The least preferred style is Expert Style. As Expert and Formal Authority Styles are teacher-centered styles, it can be concluded that the secondary school teachers follow a student-centered approach in their class room behaviour and does not considerably foster teacher centered approaches.

Teaching Style Preferences of Secondary School Teachers by Gender

Gender difference in Teaching Style preference of Secondary School Teachers is examined to understand how male and female teachers differ with respect to Dependent Variable. The data and results of the t-test for the means of Teaching Style between male and female teachers in the Total Sample is presented in Table

Table 26

Comparison of the Extent of Teaching Styles by Gender

Teaching style (DV)	Gender				
	Male (N=110)		Female (N=190)		't' value
	M	SD	M	SD	
Expert	25.15	9.21	26.42	8.53	1.89
Formal Authority	27.27	8.86	28.43	7.79	1.14
Personal	31.59	7.42	31.01	7.64	0.65
Facilitator	35.39	7.68	35.64	6.66	0.28
Delegator	30.65	8.94	28.54	8.75	1.99*

Note: *p<.05;DV denotes Dependent Variable

Table26 shows that the preference for Expert Style Teaching does not significantly differ between female teachers (M=26.42, SD= 8.53) and male teachers for the total sample (M=25.15, SD= 9.21), [t=1.89, p>.05].

Table26 shows that the preference for Formal Authority Style teaching does not significantly differ between female teachers (M=28.43, SD= 7.79) and male teachers for the total sample (M=27.27, SD= 8.86), [t=1.14, p>.05].

Table26 shows that the preference for Personal Style teaching does not significantly differ between female teachers (M=31.01, SD= 7.64) and male teachers for the total sample (M=31.59, SD= 7.42), [t=0.65, p>.05].

Table26shows that the preference for Facilitator Style teaching does not significantly differ between female teachers (M=35.64, SD= 6.66) and male teachers for the total sample (M=35.39, SD= 7.68), [t=0.28, p>.05].

Table26 shows the mean scores of preferences for Delegating Teaching Style between female teachers (M=28.54, SD= 8.75) and male teachers (M=30.65, SD= 8.94). The preference for Delegating Teaching Style is significantly less for female teachers than male teachers [t=1.99, p<.05].The male teachers have the tendency to prefer delegation than female teachers.

Table26 shows that the extent of five teaching styles by gender. For Delegating Style, there exists significant difference between female and male teachers for the total sample; male teachers have the tendency to prefer delegation than female teachers. There exists no significant difference in Expert, Formal Authority, Personal and Facilitating Styles of teaching between female and male teachers.

Teaching Style Preferences of Secondary School Teachers by Educational Qualifications

On the basis of educational qualifications, the secondary school teachers have categorized into two groups (Graduates and Post Graduates) in this study in addition to the training course. The data and results of the t-test for the means of Teaching Style between Graduate (Degree) and Post Graduate(PG) Secondary School teachers in the Total Sample is presented in Table 27.

Table 27

Comparison of the Extent of Teaching Styles by Educational Qualifications

Teaching style (DV)	Educational Qualifications				
	Degree (N=121)		PG (N=179)		't' value
	M	SD	M	SD	
Expert	27.80	8.75	24.70	8.62	3.02**
Formal Authority	28.39	7.80	27.75	8.47	0.67
Personal	31.29	7.60	31.17	7.54	0.13
Facilitator	34.46	7.00	36.28	6.98	2.21*
Delegator	28.12	9.13	30.12	8.61	1.91

Note: *p<.05, **p<.01;DV denotes Dependent Variable

Table27shows the mean scores of preferences for Expert Teaching Style between post graduate teachers (M=24.70, SD= 8.62) and graduate teachers (M=27.80, SD= 8.75). The preference for Expert Teaching Style is significantly less for post graduate teachers than graduate teachers [t=3.02, p<.01].The graduate teachers prefer Expert Style than post graduate teachers.

Table27 shows that the preference for Formal Authority Teaching Style does not significantly differ between post graduate teachers (M=27.75, SD= 8.47) and graduate teachers for the total sample (M=28.39, SD= 7.80), [t=0.67, p>.05].

Table27shows that the preference for Personal Teaching Style does not significantly differ between post graduate teachers (M=31.17, SD= 7.54) and graduate teachers for the total sample (M=31.29, SD= 7.60), [t=0.13, p>.05].

Table27 shows the mean scores of preferences for Facilitating Teaching Style between post graduate teachers (M=36.28, SD= 6.98) and graduate teachers (M=34.46, SD= 7.00). The preference for Facilitating Teaching Style is significantly more for post graduate teachers than graduate

teachers, [t=2.21, p<.05].The post graduate teachers prefer Facilitating Teaching Style than graduate teachers.

Table27 shows that the preference for Delegating Teaching Style does not significantly differ between post graduate teachers (M=30.12, SD= 8.61) and graduate teachers for the total sample (M=28.12, SD= 9.13), [t=1.91, p>.05].

Table shows that the extent of five teaching styles by educational qualifications of teachers. For Facilitating Style, there exists significant difference between post graduate and graduate teachers for the total sample; post graduate teachers prefer Delegating Style than graduate teachers. The graduate teachers prefer Expert Style than post graduate teachers. There exists no significant difference in Formal Authority, Personal and Delegating Styles of teaching between post graduate and graduate teachers.

Teaching Styles of Secondary School Teachers by Type of school Management

The Secondary School Teachers are classified into three groups on the basis of Type of School Management namely, Government, Aided and Unaided.

Expert Teaching Style of Secondary School Teachers by Type of school Management

To answer the question whether type of school management (Government, Aided and Unaided) can significantly affect the Expert Teaching Style of Secondary School Teachers, one-way ANOVA was employed. The mean scores of Expert Teaching Style were compared among three groups (Government, Aided and Unaided) of Secondary School teachers, using one-way ANOVA to check whether there exists any

significant difference among three groups. Results of ANOVA are presented in Table 28.

Table 28

ANOVA of Expert Teaching Style by Type of School Management among Secondary School Teachers

Source of Variance	SS	df	MS	F
Between Groups	1355.70	2	677.85	9.26**
Within Groups	21741.65	297	73.20	
Total	23097.35	299		

** Indicate p<.01

Table 28 shows that the main effect of type of school management (Govt, Aided, Unaided) on Expert Teaching Style is significant, [F (2,297)=9.26,*p*<.01)]. Mean scores of Expert Teaching Style differ significantly among Government (M=23.67, SD=8.48), Aided (M=28.01, SD=8.20) and Unaided (M= 27.61,SD=10.13) groups.

Comparison of Mean Scores of Expert Teaching Style by Type of School Management

One way analysis of variance reveals that Expert Teaching Style differs significantly among three groups (Government, aided and Unaided) of Secondary School Teachers. To find out between which of these groups this difference exists and answer the question whether the government school teachers prefer Expert Teaching Style better than aided school teachers, test of significance of difference between mean scores was carried out. The result of the test of the significance of difference between mean scores are presented in Table 29.

Table 29

Comparison of Mean Scores of Expert Teaching Style of Secondary School Teachers by Levels of Type of School Management

Groups	Mean	SD	Critical ratio
Government (N=139)	23.67	8.48	-4.25**
Aided (N=128)	28.01	8.20	
Government (N=139)	23.67	8.48	-2.07*
Unaided (N=33)	27.61	10.13	
Aided (N=128)	28.01	8.20	0.21
Unaided (N=33)	27.61	10.13	

Note: *p<.05, **p<.01

Table29 reveals that Aided school teachers (Mean= 28.01,SD=8.20) shows significantly higher preference on Expert Teaching Style than government school teachers (M=23.67, SD=8.48)[*t*= -4.25,*p*< .01].The Unaided school teachers (Mean= 27.61,SD=10.13) also shows significantly higher preference for Expert Teaching Style than government school teachers (Mean=23.67, SD=8.48)[*t*= -2.07, *p*< .05].The Aided school teachers (Mean= 28.01,SD=8.20) and the Unaided school teachers (Mean= 27.61,SD=10.13) did not differ significantly on Expert Teaching Style,[*t*= 0.21, *p*>0.05].

Formal Authority Teaching Style of Secondary School Teachers by Type of School Management

To answer the question whether type of school management (Government, Aided and Unaided) can significantly affect the Formal Authority Teaching Style of Secondary School Teachers, one-way ANOVA was employed. The mean scores of Formal Authority Teaching Style were compared among three groups (Government, Aided and Unaided) using one-

way ANOVA to check whether there exist any significant difference among three groups. Results of ANOVA are presented in Table 30.

Table 30

ANOVA of Formal Authority Teaching Style by Type of School Management among Secondary School Teachers

Source of Variance	SS	df	MS	F
Between Groups	853.57	2	426.78	6.58**
Within Groups	19262.42	297	64.857	
Total	20115.99	299		

** indicate p<.01

Table30 shows that the main effect of type of school management (Government, Aided, and Unaided) on Formal Authority Teaching Style is significant[F (2,297)=6.58, *p*<.01)]. Mean scores of Formal Authority Teaching Style differ significantly among Government (M=26.74, SD=8.81), Aided (M= 29.94, SD=7.67) and Unaided (M= 25.85,SD=10.13) groups.

Comparison of Mean Scores of Formal Authority Teaching Style by Type of School Management

One-way analysis of variance reveals that Formal Authority teaching style differs significantly among three groups (Government, aided and Unaided) of Secondary School Teachers. To find out between which of these groups this difference exists and answer the question whether the government school teachers prefer Formal Authority Teaching Style better than aided school teachers, test of significance of difference between mean scores was carried out. The result of the test of significance of difference between mean scores is presented in Table 31.

Table 31

Comparison of Mean Scores of Formal Authority Teaching Style of Secondary School Teachers by Levels of Type of School Management

Groups	Mean	SD	Critical ratio
Government (N=139)	26.74	8.81	-3.17**
Aided (N=128)	29.94	7.67	
Government (N=139)	26.74	8.81	0.71
Unaided (N=33)	25.85	5.76	
Aided (N=128)	29.94	7.67	3.38**
Unaided (N=33)	25.85	5.76	

Note: **p<.01

Table31 reveals that Aided school teachers (M= 29.94, SD=7.67) shows significantly higher preference of Formal Authority Teaching Style than the government school teachers (M=26.74, SD=8.81)[*t*= -3.17,*p*< .01].

The Aided school teachers (M= 29.94, SD=7.67) shows significantly higher preference for Formal authority Teaching Style than Unaided school teachers (M= 25.85, SD=5.76[*t*= 3.38, *p*< .01].The government school teachers (M=26.74, SD=8.81)and the Aided school teachers (M= 29.94, SD=7.67) did not differ significantly on Formal Authority teaching Style [*t*= -0.71, *p*>.05].

Personal Teaching style of Secondary School Teachers by Type of school Management

To answer the question whether type of school management (Government, Aided and Unaided) can significantly affect the Personal Teaching Style of Secondary School Teachers, one-way ANOVA was employed. The mean scores of Personal Teaching Style were compared among three groups (Government, Aided and Unaided) of Secondary School teachers, using one-way ANOVA to check whether there exists any

significant difference among three groups. Results of ANOVA are presented in Table 32.

Table 32

ANOVA of Personal Teaching Style by Type of School Management among Secondary School Teachers

Source of Variance	SS	df	MS	F
Between Groups	432.53	2	216.26	3.86*
Within Groups	16626.95	297	55.98	
Total	17059.48	299		

* indicate p<.05

Table32 shows that the main effect of type of school management for type of school management (Government, Aided, and Unaided) on Personal Teaching Style is significant[F (2,297)=3.86,*p*<.05)]. Mean scores of Personal Teaching Style differ significantly among Government (Mean=32.36, SD=7.30), Aided (Mean= 29.84, SD=7.54) and Unaided (Mean= 31.76,SD=8.01) groups.

Comparison of Mean Scores of Personal Teaching Style by Type of School Management

One-way analysis of variance reveals that Personal Teaching Style differs significantly among three groups (Government, aided and Unaided) of Secondary School Teachers. To find out between which of these groups this difference exists and answer the question whether the government school teachers prefer Personal Teaching Style better than aided school teachers, test of significance of difference between mean scores was carried out. The result of the test of significance of difference between mean scores is presented in Table 33.

Table 33

Comparison of Mean Scores of Personal Teaching Style of Secondary School Teachers by Levels of Type of School Management

Groups	Mean	SD	Critical ratio
Government (N=139)	32.36	7.30	2.77**
Aided (N=128)	29.84	7.54	
Government (N=139)	32.36	7.30	-0.39
Unaided (N=33)	31.76	8.01	
Aided (N=128)	29.84	7.54	-1.24
Unaided (N=33)	31.76	8.01	

Note: **p<.01

Table33 reveals that Government School Teachers (Mean=32.36, SD=7.30) shows significantly higher preference on Personal Teaching Style than the Aided school teachers (Mean= 29.84, SD=7.54), t= 2.77,p< .05.

The government school teachers (Mean=32.36, SD=7.30) and the Unaided school teachers (Mean= 31.76, SD=8.01) did not differ significantly on Personal Teaching Style [t= -0.39, p>.05]. Likewise, Aided school teachers (Mean= 29.84, SD=7.54) and Unaided school teachers (Mean= 31.76,SD=8.01) did not differ significantly on Personal Teaching Style [t= -1.24, p>.05].

Facilitating Teaching Style of Secondary School Teachers by Type of School Management

To answer the question whether type of school management (Government, Aided and Unaided) can significantly affect the Facilitating Teaching Style of Secondary School Teachers, one-way ANOVA was employed. The mean scores of Facilitating Teaching Style were compared among three groups (Government, Aided and Unaided) of Secondary School

teachers, using one-way ANOVA to check whether there exists any significance difference among three groups. Results of ANOVA are presented in Table 34.

Table 34

ANOVA of Facilitating Teaching Style by Type of School Management among Secondary School Teachers

Source of Variance	SS	df	MS	F
Between Groups	164.53	2	82.26	1.67
Within Groups	14643.74	297	49.31	
Total	14808.25	299		

Table 34 shows that the main effect of type of school management for type of school management (Government, Aided, Unaided) on Facilitating Teaching Style is not significant [F (2,297)=1.67, p >.05)].

Delegator Teaching Style of Secondary School Teachers by Type of school Management

To answer the question whether type of school management (Government, Aided and Unaided) can significantly affect the Delegator Teaching Style of Secondary School Teachers, one-way ANOVA was employed. The mean scores of Delegator Teaching Style were compared among three groups (Government, Aided and Unaided) of Secondary School teachers, using one-way ANOVA to check whether there exists any significance difference among three groups. Results of ANOVA are presented in Table 35.

Table 35

ANOVA of Delegator Teaching Style by Type of School Management among Secondary School Teachers

Source of Variance	SS	df	MS	F
Between Groups	1032.58	2	516.30	6.83**
Within Groups	22435.59	297	75.54	
Total	23468.17	299		

** indicate p<.01

Table35 shows that the main effect of type of school management (Government, Aided, and Unaided) on Delegator Teaching Style is significant [F (2,297)=6.83,*p*<.01)]. Mean scores of Delegator Teaching Style differ significantly among Government (M=27.16, SD=8.65), Aided (M= 30.57, SD=7.36) and Unaided (M= 29.31,SD=8.86) groups.

Comparison of Mean Scores of Delegator Teaching Style by levels of Type of School Management

One-way analysis of variance reveals that Delegator Teaching Style differs significantly among three groups (Government, aided and Unaided) of Secondary School Teachers. To find out between which of these groups this difference exists and answer the question whether the government school teachers prefer Delegator Teaching Style better than aided and unaided school teachers, test of significance of difference between mean scores was carried out. The result of the test of significance of difference between mean scores is presented in the Table 36.

Table 36

Comparison of mean Scores of Delegator Teaching Style of secondary school teachers by levels of type of school management

Groups	Mean	SD	Critical ratio
Government (N=139)	27.16	8.65	-3.38**
Aided (N=128)	30.57	7.36	
Government (N=139)	27.16	8.65	-1.26
Unaided (N=33)	29.31	8.86	
Aided (N=128)	30.57	7.36	0.75
Unaided (N=33)	29.31	8.86	

Note: **p<.01

Table 36 reveals that the Aided school teachers (Mean= 30.57, SD=7.36) shows significantly higher preference on Delegator teaching style than Government School Teachers (M=27.16, SD=8.65) [*t*= -3.38,*p*<.01].Government School Teachers (M=27.16, SD=8.65) and Unaided school teachers (M= 29.31, SD=8.86) did not differ significantly on Delegator Teaching Style[*t*= -1.26, *p*>.05] Likewise, Aided school teachers (Mean= 30.57, SD=7.36) and Unaided school teachers (M= 29.31, SD=8.86) did not differ significantly on Delegator Teaching Style [*t*= 0.75, *p*>.05].

Teaching Styles of Secondary School Teachers by Teaching Experience

The Teaching Experience of Secondary School Teachers has been categorized into four groups (upto 3 years, 4 to 8 years, 9 to 15 years and 16 years and above)on the basis of number of years. To answer the question whether teaching experience can significantly affect the Teaching Styles of Secondary School Teachers, one-way ANOVA was employed. The mean scores of Teaching Styles (Expert, Formal Authority, Personal, Facilitator and Delegator) were compared among four groups of Secondary School teachers, using one-way ANOVA to check whether there exists any

significant difference among four groups. Results of ANOVA are presented in Table 37.

Table 37

ANOVA of Five Teaching Style by Teaching Experience among Secondary School Teachers

Teaching Styles	Source of Variance	SS	df	MS	F
Expert	Between Groups	152.09	3	50.69	.654
	Within Groups	22945.26	296	77.51	
	Total	23097.35	299		
Formal Authority	Between Groups	41.96	3	13.99	.206
	Within Groups	20074.028	296		
	Total	20115.99	299	67.82	
Personal	Between Groups	27.26	3	9.09	.158
	Within Groups	17032.22	296	57.54	
	Total	17059.48	299		
Facilitator	Between Groups	34.907	3	11.64	.233
	Within Groups	14773.34	296	49.91	
	Total	14808.25	299		
Delegator	Between Groups	72.54	3	24.18	.306
	Within Groups	23395.63	296	79.04	
	Total	23468.17	299		

Table37shows that the main effect of Teaching Experience of Secondary School Teachers on Expert Teaching Style [F (2,296)=.65 *p*>.05)] is not significant. The main effect of Teaching Experience of Secondary School Teachers on Formal Authority Teaching Style [F (2,296)=.21 *p*>.05)] is not significant either. The main effect of Teaching Experience of Secondary School Teachers on Personal Teaching Style [F(2,296)=.16*p*>.05)] is also not significant. Likewise, the main effects of Teaching Experience of Secondary School Teachers on both Facilitator Teaching Style [F (2,296) =.23 *p*>.05)] and Delegator Teaching Style[F(2,296)=.31 *p*>.05)]are not significant. Therefore it can be concluded that Teaching Experience has no

significant effect on Expert, Formal Authority, Personal, Facilitator and Delegator Teaching Styles. Also, the result reveals that Teaching Styles are relatively stable and it cannot be easily modifiable.

Teaching Styles of Secondary School Teachers by Teaching Subject

The Teaching Subject of Secondary School teachers has been categorized into five; Language, Physical Science, Biology, Mathematics and Social Science. To answer the question whether Teaching Subject can significantly affect the Teaching Styles of Secondary School Teachers, the analysis of variance of Teaching Styles in five groups namely, Language, Physical Science, Biology, Mathematics and Social Science was carried out.

Expert Teaching Styles of Secondary School Teachers by Teaching Subject

To answer the question whether teaching subject [Language, Physical Science, Biology, Mathematics and Social Science] can significantly affect the Expert Teaching Style of Secondary School Teachers, one-way ANOVA was employed. The mean scores of Expert Teaching Style were compared among five groups of Secondary School teachers, using one-way ANOVA to check whether there exists any significant difference among the five groups. Results of ANOVA are presented in Table 38.

Table 38

ANOVA of Expert Teaching Style by Teaching Subject among Secondary School Teachers

Source of Variance	SS	df	MS	F
Between Groups	785.21	4	196.30	2.60*
Within Groups	22312.13	295	75.63	
Total	23097.35	299		

Note:*p<.05

Table38 shows that the main effect of type of Teaching Subject (Language, Physical Science, Biology, Mathematics and Social Science) on Expert Teaching Style is significant [F (4,295)=2.60, p<.05)]. Mean scores of Expert Teaching Style differ significantly among Language (M=25.36, SD=8.33), Physical Science (M= 26.33, SD=8.86), Biology (M= 25.39, SD=9.82), Mathematics (M= 29.14, SD=9.48)and Social Science (M= 23.85, SD=7.45) groups.

Comparison of Mean Scores of Expert Teaching Style of Secondary School Teachers by Teaching Subject

One-way analysis of variance reveals that Expert Teaching Style differs significantly among five groups (Language, Physical Science Biology Mathematics and Social Science) of Secondary School Teachers. To find out between which of these groups this difference exists and answer the question whether the one group of subject teachers prefers Expert Teaching Style than another group of subject teachers, test of significance of difference between mean scores was carried out. The result of the test of the significance of difference between mean scores is presented in Table 39.

Table 39

Comparison of Mean Scores of Expert Teaching Style of Secondary School Teachers by Teaching Subject

Groups	Mean	SD	Critical Ratio
Language (N=107)	25.36	8.33	-.68
Physical Science (N=58)	26.33	8.86	
Language (N=107)	25.36	8.33	-2.43*
Mathematics (N=51)	29.14	9.48	
Language (N=107)	25.36	8.33	-.01
Biology (N=36)	25.39	9.82	
Language (N=107)	25.36	8.33	1.12
Social Science (N=48)	23.85	7.45	
Physical Science (N=58)	26.33	8.86	-1.59
Mathematics (N=51)	29.14	9.48	
Physical Science (N=58)	26.33	8.86	.47
Biology (N=36)	25.39	9.82	
Physical Science (N=58)	26.33	8.86	1.56
Social Science (N=48)	23.85	7.45	
Biology (N=36)	25.39	9.82	-1.78
Mathematics (N=51)	29.14	9.48	
Biology (N=36)	25.39	9.82	.78
Social Science (N=48)	23.85	7.45	
Mathematics (N=51)	29.14	9.48	3.09**
Social Science (N=48)	23.85	7.45	

Note: **p<.01

Table39 reveals that Language (M=25.36, SD=8.33) and Physical Science Teachers (M=26.33, SD=8.86) did not differ significantly on Expert Teaching Style [t=0.68 p >.05].The Mathematics (M=29.14, SD=9.48) teachers show significantly higher preference on Expert Teaching Style than

Language (M=25.36, SD=8.33) [t=2.43,p<.05].The Language (M=25.36, SD=8.33) and Biology (M=25.39, SD=9.82) did not differ significantly on Expert Teaching Style[t=0.01 p>.05].The Language (M=25.36, SD=8.33) and Social Science (M=23.85,SD=7.45) teachers did not differ significantly on Expert Teaching Style [t=1.12 p >.05]. The Physical Science (M=26.33, SD=8.86) and Mathematics (M=29.14, SD=9.48) teachers did not differ significantly on Expert Teaching Style, [t=1.59p >.05]. The Physical Science (M=26.33, SD=8.86) and Biology (M=25.39, SD=9.82) teachers did not differ significantly on Expert Teaching Style[t=.47p >.05]. The Physical Science (M=26.33, SD=8.86) and Social Science (M=23.85,SD=7.45) teachers did not differ significantly on Expert Teaching Style [t=1.56,p >.05]. The Biology (M=25.39, SD=9.82) and Mathematics (M=29.14, SD=9.48) teachers did not differ significantly on Expert Teaching Style[t=1.56,p >.05]. The Biology (M=25.39, SD=9.82) and Social Science (M=23.85, SD=7.45) teachers did not differ significantly on Expert Teaching Style[t=.78,p >.05]. The Mathematics (M=29.14, SD=9.48) teachers show significantly higher preference on Expert Teaching Style than Social Science teachers (M=23.85, SD=7.45) [t=3.09,p<.01].

Formal Authority Teaching styles of Secondary School Teachers by Teaching Subject

To answer the question whether Teaching Subject [Language, Physical Science, Biology, Mathematics and Social Science] can significantly affect the Formal Authority Teaching Style of Secondary School Teachers, one-way ANOVA was employed. The mean scores of Formal Authority Teaching Style were compared among five groups of Secondary School teachers, using one-way ANOVA to check whether there exists any significant difference among five groups. Results of ANOVA are presented in Table 40.

Table 40

ANOVA of Formal Authority Teaching Style by Teaching Subject among Secondary School Teachers

Source of Variance	SS	df	MS	F
Between Groups	827.82	4	206.96	3.17*
Within Groups	19288.16	295	65.38	
Total	20115.99	299		

* indicates p<.05

Table40 shows that the main effect of type of Teaching Subject (Language, Physical Science, Biology, Mathematics and Social Science) on Formal Authority Teaching Style is significant, [F (4,295)=3.17, *p*<.05)]. Mean scores of Formal Authority Teaching Style differ significantly among Language (M=26.25, SD=8.08), Physical Science (M=28.14, SD=7.57), Biology (M= 31.03, SD=8.46), Mathematics (M=29.78, SD=7.01) and Social Science (M=27.60, SD = 9.38) groups.

Comparison of Mean Scores of Formal Authority Teaching Style of Secondary School Teachers by Teaching Subject

One-way analysis of variance reveals that Formal Authority Teaching Style differs significantly among five groups (Language, Physical Science Biology Mathematics and Social Science) of Secondary School Teachers. To find out between which of these groups this difference exists and answer the question whether the one subject teachers prefer Formal Authority Teaching Style than another subject teachers, test of significance of difference between mean scores was carried out. The result of the test of significance of difference between mean scores is presented in Table 41.

Table 41

Comparison of Mean Scores of Formal Authority Teaching Style of Secondary School Teachers by Teaching Subject

Groups	Mean	SD	Critical Ratio
Language (N=107)	26.25	8.08	
Physical Science (N=58)	28.14	7.57	-1.49
Language (N=107)	26.25	8.08	
Mathematics (N=51)	29.78	7.01	-2.81**
Language (N=107)	26.25	8.08	
Biology (N=36)	31.03	8.46	-2.96**
Language (N=107)	26.25	8.08	
Social Science (N=48)	27.60	9.38	-0.86
Physical Science (N=58)	28.14	7.57	
Mathematics (N=51)	29.78	7.01	-1.18
Physical Science (N=58)	28.14	7.57	
Biology (N=36)	31.03	8.46	-1.67
Physical Science (N=58)	28.14	7.57	
Social Science (N=48)	27.60	9.38	0.32
Biology (N=36)	31.03	8.46	
Mathematics (N=51)	29.78	7.01	0.72
Biology (N=36)	31.03	8.46	
Social Science (N=48)	27.60	9.38	1.75
Mathematics (N=51)	29.78	7.01	
Social Science (N=48)	27.60	9.38	1.30

Note:**p<.01

Table41reveals that Language (M=26.25, SD=8.08) and Physical Science Teachers (M=28.14, SD=7.57) did not differ significantly on Formal Authority Teaching Style [t=-1.49, p>.05]. The Mathematics (M=29.78, SD=7.01)teachers show significantly higher preference on Formal Authority

Teaching Style than Language Teachers (M=26.25, SD=8.08)[t=-2.81,p<.01].The Biology teachers (M= 31.03, SD=8.46) show significantly higher preference on Formal Authority Teaching Style than Language teachers (M=26.25, SD=8.08)[t=2.96, p<.01]. The Language (M=26.25, SD= 8.08) and Social Science (M=27.60, SD = 9.38) teachers did not differ significantly on Formal Authority Teaching Style, [t=-.86, p >.05].The Physical Science (M=28.14, SD=7.57) and Mathematics (M=29.78, SD=7.01) teachers did not differ significantly on Formal Authority Teaching Style, [t=1.18,p>0.05]. The Physical Science (M=28.14, SD=7.57)and Biology (M= 31.03,SD=8.46) teachers did not differ significantly on Formal Authority Teaching Style[t=1.67, p>.05]. The Physical Science (M=28.14,SD=7.57) and Social Science (M=27.60, SD=9.38) teachers did not differ significantly on Formal Authority Teaching Style, [t=.32, p >.05]. The Biology (M= 31.03,SD=8.46) and Mathematics (M=29.78, SD=7.01) teachers did not differ significantly on Formal Authority Teaching Style[t=.72, p>.05]. The Biology (M= 31.03,SD=8.46) and Social Science (M=27.60,SD=9.38) teachers did not differ significantly on Formal Authority Teaching Style[t=1.75, p >.05]. The Mathematics (M=29.78, SD=7.01) and Social Science (M=23.85, SD=7.45) teachers did not differ significantly on Formal Authority Teaching Style[t=1.30, p >.05].

Personal Teaching styles of Secondary School Teachers by Teaching Subject

To answer the question whether teaching subject [Language, Physical Science, Biology, Mathematics and Social Science] can significantly affect the Personal Teaching Style of Secondary School Teachers, one-way ANOVA was employed. The mean scores of Personal Teaching Style were compared among five groups of Secondary School teachers, using one-way

ANOVA to check whether there exists any significant difference among five groups. Results of ANOVA are presented in Table 42.

Table 42

ANOVA of Personal Teaching Style by Teaching Subject among Secondary School Teachers

Source of Variance	SS	df	MS	F
Between Groups	868.85	4	217.21	3.96**
Within Groups	16190.63	295	54.88	
Total	17059.48	299		

** indicate p<.01

Table42 shows that the main effect of type of Teaching Subject (Language, Physical Science, Biology, Mathematics and Social Science) on Personal Teaching Style is significant [F (4,295)=3.96, *p*<.01)]. Mean scores of Personal Teaching Style differ significantly among Language (M=26.25, SD=8.08), Physical Science (M=28.14, SD=7.57), Biology (M= 31.03, SD=8.46), Mathematics (M=29.78, SD=7.01) and Social Science (M=27.60, SD = 9.38) groups.

Comparison of Mean Scores of Personal Teaching Style of Secondary School Teachers by Teaching Subject

One way analysis of variance reveals that Personal Teaching Style differs significantly among five groups (Language, Physical Science Biology Mathematics and Social Science) of Secondary School Teachers. To find out between which of these groups this difference exists and answer the question whether the one subject teachers prefer Personal Teaching Style than another subject teachers, test of significance of difference between mean scores was carried out. The results of the test of significance of difference between mean scores are presented in the Table 43.

Table 43

Comparison of Mean Scores of Personal Teaching Style of Secondary School Teachers by Teaching Subject

Groups	Mean	SD	Critical Ratio
Language (N=107)	31.37	7.70	-0.10
Physical Science (N=58)	31.50	7.62	
Language (N=107)	31.37	7.70	2.20*
Mathematics (N=51)	28.55	7.47	
Language (N=107)	31.37	7.70	0.92
Biology (N=36)	30.03	7.60	
Language (N=107)	31.37	7.70	-2.49*
Social Science (N=48)	34.27	6.17	
Physical Science (N=58)	31.50	7.62	2.04*
Mathematics (N=51)	28.55	7.47	
Physical Science (N=58)	31.50	7.62	0.91
Biology (N=36)	30.03	7.60	
Physical Science (N=58)	31.50	7.62	-2.07*
Social Science (N=48)	34.27	6.17	
Biology (N=36)	30.03	7.60	0.90
Mathematics (N=51)	28.55	7.47	
Biology (N=36)	30.03	7.60	-2.74**
Social Science (N=48)	34.27	6.17	
Mathematics (N=51)	28.55	7.47	-4.17**
Social Science (N=48)	34.27	6.17	

Note: *p<.05, **p<.01

Table43 reveals that Language (M=26.25, SD=8.08) and Physical Science Teachers (M=28.14, SD=7.57) did not differ significantly on Personal Teaching Style, [t=-.10, p >.05]. The Language Teachers (M=31.37, SD=7.70) show significantly higher preference on Personal Teaching Style

than Mathematics teachers (M=28.55, SD=7.47) [*t*=2.20,p<.05]. The Biology teachers (M= 30.03, SD=7.60) and Language teachers (M=31.37, SD=7.70) did not differ significantly on Personal Teaching Style, [*t*=.92, *p* >.05]. The Social Science teachers (M=34.27, SD=6.17) show significantly higher preference on Personal Teaching Style than Language teachers (M=31.37, SD=7.70),[*t*=2.49,p<.05].The Physical Science (M=31.50,SD=7.62) show significantly higher preference on Personal Teaching Style than and Mathematics teachers (M=28.55, SD=7.47), [*t*=2.04, p<.05]. The Physical Science (M=31.50, SD=7.62) and Biology (M= 30.03, SD=7.60) teachers did not differ significantly on Personal Teaching Style, [*t*=.91, *p* >.05]. The Social Science teachers (M=34.27, SD=6.17) show significantly higher preference on Personal Teaching Style than Physical Science teachers (M=28.14, SD=7.57 [*t*=-2.07, p<.05]. The Biology (M= 30.03, SD=7.60) and Mathematics (M=28.55, SD=7.47) teachers did not differ significantly on Personal Teaching Style, [*t*= 0.90, *p* >.05]. The Social Science teachers (M=34.27, SD=6.17) show significantly higher preference on Personal Teaching Style than Biology teachers (M=30.03, SD=7.60)[*t*=-2.74, p<.01].The Social Science teachers (M=34.27, SD=6.17) show significantly higher preference on Personal Teaching Style than Mathematics teachers (M=28.55, SD=7.47), [*t*=-4.17, p<.01].

It is evident from the result that Language teachers and Mathematics teachers differ significantly in the Personal Teaching Style. The significant higher mean scores for Personal Teaching Style of Language teachers suggest that Personal Style is higher in Language teachers than Mathematics teachers. The significant higher mean scores for Personal Teaching Style of Social Science teachers suggest that Personal Style is higher in Social Science teachers than Language teachers. The significantly higher mean scores for Personal Teaching Style of Physical Science teachers suggest that Personal Style is higher in Physical Science teachers than Mathematics teachers. The

significantly higher mean scores for Personal Teaching Style of Social Science teachers suggest that Personal Style is higher in Social Science teachers than Physical Science teachers. The significantly higher mean scores for Personal teaching style of Social Science teachers suggest that Personal Style is higher in Social Science teachers than Biology teachers. The significantly higher mean scores for Personal Teaching Style of Social Science teachers suggest that Personal Style is higher in Social Science teachers than Mathematics teachers. It can be concluded that Social Science teachers prefer Personal Teaching Style than other subject teachers.

Facilitating Teaching Styles of Secondary School Teachers by Teaching Subject

To answer the question whether Teaching Subject [Language, Physical Science, Biology, Mathematics and Social Science] can significantly affect the Facilitating Teaching Style of Secondary School Teachers, one-way ANOVA was employed. The mean scores of Facilitating Teaching Style were compared among five groups of Secondary School teachers, using one-way ANOVA to check whether there exists any significant difference among five groups. Results of ANOVA are presented in Table 44.

Table 44

ANOVA of Facilitator Teaching Style by Teaching Subject among Secondary School Teachers

Source of Variance	SS	df	MS	F
Between Groups	230.04	4	57.51	1.16
Within Groups	14578.21	295	49.42	
Total	14808.25	299		

Table44 shows that the main effect of type of Teaching Subject (Language, Physical Science, Biology, Mathematics and Social Science) on Facilitating Teaching Style is not significant F(4,295)=1.16, *p*>.05. Mean scores of Facilitating Teaching Style does not differ significantly among Language (M=36.32, SD=6.36),Physical Science (M=34.48, SD=6.50),Biology (M= 36.19, SD=7.62),Mathematics (M=34.31, SD=8.35)and Social Science (M=35.96, SD = 7.09) groups.

Delegating Teaching styles of Secondary School Teachers by Teaching Subject

To answer the question whether Teaching Subject [Language, Physical Science, Biology, Mathematics and Social Science] can significantly affect the Delegating Teaching Style of Secondary School Teachers, one-way ANOVA was employed. The mean scores of Delegating Teaching Style were compared among five groups of Secondary School teachers, using one-way ANOVA to check whether there exists any significant difference among five groups. Results of ANOVA are presented in Table 45.

Table 45

ANOVA of Delegating Teaching Style by Teaching Subject among Secondary School Teachers

Source of Variance	SS	df	MS	F
Between Groups	439.75	4	109.94	1.41
Within Groups	23028.42	295	78.06	
Total	23468.17	299		

Table45 shows that the main effect of type of Teaching Subject (Language, Physical Science, Biology, Mathematics and Social Science) on Delegating teaching style is not significant, F(4,295)=1.41, *p*>.05. Mean scores of Delegating Teaching Style does not differ significantly among

Language (M=30.69, SD=8.76), Physical Science (M=29.64, SD=7.90), Biology (27.39, SD=9.22), Mathematics (M=28.31, SD=8.83)and Social Science (M=28.33, SD = 9.74) groups.

Influence of Learning Style Preferences on Teaching Styles

Influence of Learning Style preferences on Teaching Styles was studied via comparing the extent of each of the five Teaching Styles by Level Preference for each of four learning style viz., Visual, Visual Letter, Auditory and Kinesthetic.

Influence of Visual Learning Preference on Teaching Styles

Difference in extent of Teaching Styles by Visual Learning Preference was studied using test of significance of difference between means. Mean scores of each of the five Teaching Styles of teachers who have high preference for Visual Learning and those who have low preference for Visual Letter Learning were compared. Data and results are in Table 46.

Table 46

Comparison of the Extent of Teaching Styles by Level of Visual Learning Preference

Teaching style (DV)	Level of Visual Learning Style				't' value
	Low (N=92)		High (N=73)		
	M	SD	M	SD	
Expert	26.12	8.43	27.15	9.36	0.73
Formal Authority	27.19	8.68	30.30	7.84	2.41*
Personal	31.93	7.88	30.42	7.39	1.27
Facilitator	35.41	6.37	34.55	7.32	0.80
Delegator	29.43	9.32	27.64	8.80	1.27

Note: *p<.05;DV denotes Dependent Variable

Table 46shows that the preference for Expert Style teaching does not significantly differ between teachers who prefer Visual Learning (M=27.15, SD= 9.36) and those who do not prefer Visual Learning (M=26.12, SD= 8.43), [t=0.73, p>.05].

Table 46 shows the mean scores of preferences for Formal Authority Teaching Style among teachers who prefer Visual Learning (M=30.30, SD= 7.84) and among those who do not prefer Visual Learning (M=27.19, SD= 8.68). The preference for Formal Authority Teaching Style is significantly more for teachers who prefer Visual Learning, than those who do not prefer Visual Learning, [t=2.41, p<.05].

Table 46 shows that the preference for Personal Style teaching does not significantly differ between teachers who prefer Visual Learning (M=30.42, SD= 7.39) and those who do not prefer Visual Learning (M=31.93, SD= 7.88), [t=1.27, p>.05].

Table 46 shows that the preference for Facilitator Style teaching does not significantly differ between teachers who prefer Visual Learning (M=34.55, SD= 7.32) and those who do not prefer Visual Learning (M=35.41, SD= 6.37), [t=0.80, p>.05].

Table 46 shows that the preference for Delegator Style teaching does not significantly differ between teachers who prefer Visual Learning (M=27.64, SD= 8.80) and those who do not prefer Visual Learning (M=29.43, SD= 9.32), [t=1.27, p>.05].

To sum up, the extent of Teaching Styles by level of Visual Learning preference in Table46 reveals that preferences for Formal Authority Teaching Style is significantly more for teachers who prefer Visual Learning. However, Expert, Personal, Facilitating and Delegating styles of teaching does not significantly differ by preference for Visual Learning.In brief, teachers with

Visual Learning preference tends to adopt Formal Authority Style of teaching. Expert, Personal, Facilitating and Delegating styles of teaching among teachers are independent of their preference for Visual Learning.

Influence of Visual Letter Learning Preference on Teaching Styles

Difference in extent of Teaching Styles by Visual Letter Learning Preference was studied using test of significance of difference between means. Mean scores of each of the five Teaching Styles of teachers who have high preference for Visual Letter Learning and those who have low preference for Visual Letter Learning were compared. Data and results are in Table 47.

Table 47

Comparison of the Extent of Teaching Styles by Level of Visual Letter Learning Preference

Teaching style (DV)	Level of Visual Letter Learning Style				't' value
	Low (N=89)		High (N=60)		
	M	SD	M	SD	
Expert	24.44	9.56	28.72	8.70	2.83**
Formal Authority	27.03	8.17	30.10	6.68	2.51*
Personal	30.82	7.70	31.80	6.79	0.82
Facilitator	37.52	6.69	32.98	7.17	3.89**
Delegator	30.21	8.36	26.53	8.16	2.67**

Note: *p<.05, **p<.01;DV denotes Dependent Variable

Table 47 shows the mean scores of preferences for Expert Teaching Style among teachers who prefer Visual Letter Learning (M=28.72, SD= 8.70) and among those who do not prefer Visual Letter Learning (M=24.44, SD= 9.56). The preference for Expert Teaching Style is significantly more for

teachers who prefer Visual Letter Learning, than those who do not prefer Visual Letter Learning, [t=2.83, p<.01].

Table 47 shows the mean scores of preferences for Formal Authority Teaching Style among teachers who prefer Visual Letter Learning (M=30.10, SD= 6.68) and among those who do not prefer Visual Letter Learning (M=27.03, SD= 8.17). The preference for Formal Authority Teaching Style is significantly more for teachers who prefer Visual Letter Learning, than those who do not prefer Visual Letter Learning, [t=2.51, p<.05].

Table 47 shows that the preference for Personal Style teaching does not significantly differ between teachers who prefer Visual Letter Learning (M=31.80, SD= 6.79) and those who do not prefer Visual Letter Learning (M=30.82, SD= 7.70), [t=0.82, p>.05].

Table 47 shows the mean scores of preferences for Facilitating Teaching Style among teachers who prefer Visual Letter Learning (M=32.98, SD= 7.17) and among those who do not prefer Visual Letter Learning (M=37.52, SD= 6.69). The preference for Facilitating Teaching Style is significantly less for teachers who prefer Visual Letter Learning, than those who do not prefer Visual Letter Learning, [t=3.89, p<.01].

Table 47 shows the mean scores of preferences for Delegating Teaching Style among teachers who prefer Visual Letter Learning (M=26.53, SD= 8.16) and among those who do not prefer Visual Letter Learning (M=30.21, SD= 8.36). The preference for Delegating Teaching Style is significantly less for teachers who prefer Visual Letter Learning, than those who do not prefer Visual Letter Learning, [t=2.67, p<.01].

To sum up, the extent of Teaching Styles by level of Visual Letter Learning preference in Table 47 reveals that, preferences for Expert and Formal Authority Teaching Styles are significantly more for teachers who

prefer Visual Letter Learning. The preferences for Facilitating and Delegating Teaching Styles are significantly less for teachers who prefer Visual Letter Learning. However, Personal Style teaching does not significantly differ by preference for Visual Letter Learning. In brief, preference for Visual Letter Learning style of teachers influences their Teaching Styles. Teachers with Visual Letter Learning preference tends to adopt Expert and Formal Authority styles of teaching. Teachers short of Visual Letter Learning preference tend to adopt Facilitating and Delegating styles of teaching. Personal style teaching among teachers is independent of their preference for Visual Letter Learning.

Influence of Auditory Learning Preference on Teaching Styles

Difference in extent of Teaching Styles by Auditory Learning Preference was studied using test of significance of difference between means. Mean scores of each of the five Teaching Styles of teachers who have high preference for Auditory Learning and those who have low preference for Auditory Learning were compared. Data and results are in Table 48.

Table 48

Comparison of the Extent of Teaching Styles by Level of Auditory Learning Preference

Teaching style (DV)	Level of Auditory Learning Style				't' value
	Low (N=77)		High (N=58)		
	M	SD	M	SD	
Expert	25.96	8.65	24.98	8.17	0.67
Formal Authority	29.26	7.87	27.05	9.26	1.47
Personal	31.69	6.89	30.66	7.65	0.81
Facilitator	34.87	7.31	37.07	7.36	1.72
Delegator	28.23	8.37	30.26	9.10	1.32

Note: DV denotes Dependent Variable

Table 48 shows that the preference for Expert Style teaching does not significantly differ between teachers who prefer Auditory Learning (M=24.98, SD= 8.17) and those who do not prefer Auditory Learning (M=25.96, SD= 8.65), [t=0.67, p>.05].

Table 48 shows that the preference for Formal Authority Style teaching does not significantly differ between teachers who prefer Auditory Learning (M=27.05, SD= 9.26) and those who do not prefer Auditory Learning (M=29.26, SD= 7.87), [t=1.47, p>.05].

Table 48 shows that the preference for Personal Style teaching does not significantly differ between teachers who prefer Auditory Learning (M=30.66, SD= 7.65) and those who do not prefer Auditory Learning (M=31.69, SD= 6.89), [t=0.81, p>.05].

Table 48 shows that the preference for Facilitating Style teaching does not significantly differ between teachers who prefer Auditory Learning (M=37.07, SD= 7.36) and those who do not prefer Auditory Learning (M=34.87, SD= 7.31), [t=1.72, p>.05].

Table 48 shows that the preference for Delegating Style teaching does not significantly differ between teachers who prefer Auditory Learning (M=30.26, SD= 9.10) and those who do not prefer Auditory Learning (M=28.23, SD= 8.37), [t=1.32, p>.05].

The result of the extent of Teaching Styles by level of Auditory learning preference given in Table48 concluded that five styles of teaching (Expert, Formal Authority, Personal, Facilitator and Delegator) does not significantly differ between teachers who prefer Auditory Learning and those who do not prefer Auditory Learning. Teaching styles of secondary school teachers is independent of their preference for Auditory Learning.

Influence of Kinesthetic Learning Preference on Teaching Styles

Difference in extent of Teaching Styles by Kinesthetic Learning Preference was studied using test of significance of difference between means. Mean scores of each of the five Teaching Styles of teachers who have high preference for Kinesthetic Learning and those who have low preference for Kinesthetic Learning were compared. Data and results are in Table 49.

Table 49

Comparison of the Extent of Teaching Styles by Level of Kinesthetic Learning Preference

Teaching style (DV)	Level of Kinesthetic Learning Style				
	Low (N=75)		High (N=69)		't' value
	M	SD	M	SD	
Expert	27.43	9.00	23.83	8.30	2.50*
Formal Authority	30.11	8.68	27.03	7.90	2.23*
Personal	30.44	7.72	32.29	7.48	1.46
Facilitator	34.55	7.94	36.62	6.14	1.76
Delegator	27.48	9.03	30.32	8.79	1.91

Note: *p<.05;DV denotes Dependent Variable

Table 49 shows the mean scores of preferences for Expert Teaching Style among teachers who prefer Kinesthetic Learning (M=23.83, SD= 8.30) and among those who do not prefer Kinesthetic Learning (M=27.43, SD= 9.00). The preference for Expert Teaching Style is significantly less for teachers who prefer Kinesthetic Learning, than those who do not prefer Kinesthetic Learning, [t=2.50, p<.05].

Table 49 shows the mean scores of preferences for Formal Authority Teaching Style among teachers who prefer Kinesthetic Learning (M=27.03,

SD= 7.90) and among those who do not prefer Kinesthetic Learning (M=30.11, SD= 8.68). The preference for Formal Authority Teaching Style is significantly less for teachers who prefer Kinesthetic Learning, than those who do not prefer Kinesthetic Learning, [t=2.23, p<.05].

Table 49 shows that the preference for Personal Style teaching does not significantly differ between teachers who prefer Kinesthetic Learning (M=32.29, SD= 7.48) and those who do not prefer Kinesthetic Learning (M=30.44, SD= 7.72), [t=1.46, p>.05].

Table 49 shows that the preference for Facilitating Style teaching does not significantly differ between teachers who prefer Kinesthetic Learning (M=36.62, SD= 6.14) and those who do not prefer Kinesthetic Learning (M=34.55, SD= 7.94), [t=1.76, p>.05].

Table 49 shows that the preference for Delegating Style teaching does not significantly differ between teachers who prefer Kinesthetic Learning (M=30.32, SD= 8.79) and those who do not prefer Kinesthetic Learning (M=27.48, SD= 9.03), [t=1.91, p>.05].

While discussing the result of the extent of Teaching Styles by level of Kinesthetic learning preference in Table49, it is concluded that, preference for Expert and Formal Authority Teaching Style is significantly less for teachers who prefer Kinesthetic Learning, and Personal, Facilitating and Delegating style of teaching does not significantly differ between teachers who prefer Kinesthetic Learning. In short, teachers with Kinesthetic Learning preference tend to adopt Expert and Formal Authority styles of teaching. Personal, Facilitating Delegating styles of teaching among teachers is independent of their preference for Kinesthetic Learning.

Influence of Thinking Style Preferences on Teaching Styles

Influence of Thinking Style preferences on Teaching Styles was studied via comparing the extent of each of the five Teaching Styles by level preference for each of the thirteen Thinking Styles viz., Legislative, Executive, Judiciary, Monarchic, Oligarchic, Hierarchic, Anarchic, Global, Local, External, Internal, Conservative and Liberal.

Influence of Legislative Thinking Preference on Teaching Styles

Difference in extent of Teaching Styles by Legislative Thinking Preference was studied using test of significance of difference between means. Mean scores of each of the five teaching styles of teachers who have high preference for Legislative Thinking and those who have low preference for Legislative Thinking were compared. Data and results are in Table 50.

Table 50

Comparison of the Extent of Teaching Styles by Level of Legislative Thinking Preference

Teaching style (DV)	Level of Legislative thinking style				't' value
	Low (N=105)		High (N=83)		
	M	SD	M	SD	
Expert	26.08	7.99	24.98	9.50	0.86
Formal Authority	28.74	8.42	26.06	9.05	2.08*
Personal	32.32	7.79	30.78	7.99	1.32
Facilitator	35.68	6.56	35.96	7.96	0.26
Delegator	27.24	8.21	32.22	9.21	3.86**

Note: *p<.05, **p<.01;DV denotes Dependent Variable

Table50 shows that the preference for Expert Style teaching does not significantly differ between teachers who prefer Legislative Thinking

(M=24.98, SD= 9.50) and those who do not prefer Legislative Thinking (M=26.08, SD= 7.99), [t=0.86, p>.05].

Table50 shows the mean scores of preferences for Formal Authority Teaching Style among teachers who prefer Legislative Thinking (M=26.06, SD= 9.05) and among those who do not prefer Legislative Thinking (M=28.74, SD= 8.42). The preference for Formal Authority Teaching Style is significantly less for teachers who prefer Legislative Thinking, than those who do not prefer Legislative Thinking, [t=2.08, p<.05].

Table50 shows that the preference for Personal Style teaching does not significantly differ between teachers who prefer Legislative Thinking (M=30.78, SD= 7.99) and those who do not prefer Legislative Thinking (M=32.32, SD= 7.79), [t=1.32, p>.05].

Table50 shows that the preference for Facilitating Style teaching does not significantly differ between teachers who prefer Legislative Thinking (M=35.96, SD= 7.96) and those who do not prefer Legislative Thinking (M=35.68, SD= 6.56), [t=0.26, p>.05].

Table50 shows the mean scores of preferences for Delegating Teaching Style among teachers who prefer Legislative Thinking (M=32.22, SD= 9.21) and among those who do not prefer Legislative Thinking (M=27.24, SD= 8.21). The preference for Delegating Teaching Style is significantly more for teachers who prefer Legislative Thinking, than those who do not prefer Legislative Thinking, [t=3.86, p<.01].

The result of the extent of Teaching Styles by level of Legislative Thinking preference given in Table 50, concluded that, the preference for Delegating Teaching Style is significantly more for teachers who prefer Legislative Thinking, where as the preference for Formal Authority Teaching Style is significantly less for teachers who prefer Legislative Thinking. The

preference for Expert, Personal and Facilitating styles of teaching does not significantly differ between teachers who prefer Legislative Thinking and do not prefer Legislative Thinking.

In brief, preference for Legislative style of teachers influences their teaching styles. Teachers with Legislative Thinking preference tends to adopt Delegating style of teaching. Teachers short of Legislative Thinking preference tends to adopt Formal Authority Teaching Style. Expert, Personal and Facilitating teaching styles among teachers is independent of their preference for Legislative Thinking.

Influence of Executive Thinking Preference on Teaching Styles

Difference in extent of Teaching Styles by Executive Thinking Preference was studied using test of significance of difference between means. Mean scores of each of the five teaching styles of teachers who have high preference for Executive Thinking and those who have low preference for Executive Thinking were compared. Data and results are in Table 51.

Table 51

Comparison of the Extent of Teaching Styles by Level of Executive Thinking Preference

Teaching style (DV)	Level of Executive thinking style				't' value
	Low (N=113)		High (N=71)		
	M	SD	M	SD	
Expert	26.00	9.53	27.07	8.09	0.82
Formal Authority	25.69	8.34	29.96	7.57	3.58**
Personal	30.01	8.05	32.73	7.40	2.35*
Facilitator	35.53	7.89	34.44	6.60	1.01
Delegator	32.76	8.68	25.83	8.22	5.44**

Note: *p<.05, **p<.01;DV denotes Dependent Variable

Table51 shows that the preference for Expert Style teaching does not significantly differ between teachers who prefer Executive Thinking (M=27.07, SD= 8.09) and those who do not prefer Executive Thinking (M=26.00, SD= 9.53), [t=0.82, p>.05].

Table51 shows the mean scores of preferences for Formal Authority Teaching Style among teachers who prefer Executive Thinking (M=29.96, SD= 7.57) and among those who do not prefer Executive Thinking (M=25.69, SD= 8.34). The preference for Formal Authority Teaching Style is significantly more for teachers who prefer Executive Thinking, than those who do not prefer Executive Thinking, [t=3.58, p<.01].

Table51 shows the mean scores of preferences for Personal Teaching Style among teachers who prefer Executive Thinking (M=32.73, SD= 7.40) and among those who do not prefer Executive Thinking (M=30.01, SD= 8.05). The preference for Personal Teaching Style is significantly more for teachers who prefer Executive Thinking, than those who do not prefer Executive Thinking, [t=2.35, p<.05].

Table51 shows that the preference for Facilitator Style teaching does not significantly differ between teachers who prefer Executive Thinking (M=34.44, SD= 6.60) and those who do not prefer Executive Thinking (M=35.53, SD= 7.89), [t=1.01, p>.05].

Table 51 shows the mean scores of preferences for Delegating Teaching Style among teachers who prefer Executive Thinking (M=25.83, SD= 8.22) and among those who do not prefer Executive Thinking (M=32.76, SD= 8.68). The preference for Delegating Teaching Style is significantly less for teachers who prefer Executive Thinking, than those who do not prefer Executive Thinking, [t=5.44, p<.01].

While discussing the result of the extent of Teaching Styles by level of Executive Thinking preference given in Table 51, it is concluded that, Formal Authority and Personal Teaching Styles is significantly more for teachers who

prefer Executive Thinking, while the preference for Delegating Teaching Style is significantly less for teachers who prefer Executive Thinking. Expert and Facilitating Styles of teaching do not significantly differ between teachers who prefer Executive Thinking and do not prefer Executive Thinking.

In short, the preference of Executive Thinking of teachers influences their teaching styles. Teachers with Executive Thinking preference tends to adopt Formal Authority and Personal styles of teaching. Teachers short of Executive Thinking preference tends to adopt Delegating style of teaching. Expert style teaching among teachers is independent of their preference for Executive Thinking.

Influence of Judicial Thinking Preference on Teaching Styles

Difference in extent of Teaching Styles by Judicial Thinking Preference was studied using test of significance of difference between means. Mean scores of each of the five Teaching Styles of teachers who have high preference for Judicial Thinking and those who have low preference for Judicial Thinking were compared. Data and results are in Table 52.

Table 52

Comparison of the Extent of Teaching Styles by Level of Judicial Thinking Preference

Teaching style (DV)	Level of Judicial thinking style				't' value
	Low (N=80)		High (N=39)		
	M	SD	M	SD	
Expert	26.39	9.00	26.05	8.09	0.21
Formal Authority	29.60	7.87	25.92	8.44	2.28*
Personal	31.56	7.66	30.28	8.16	0.82
Facilitator	35.20	7.43	35.54	7.37	2.34*
Delegator	27.34	9.48	32.28	8.61	2.84**

Note: *p<.05, **p<.01;DV denotes Dependent Variable

Table 52 shows that the preference for Expert Style teaching does not significantly differ between teachers who prefer Judicial Thinking (M=26.05, SD= 8.09) and those who do not prefer Judicial Thinking (M=26.39, SD= 9.00), [t=0.21, p>.05].

Table52 shows the mean scores of preferences for Formal Authority Teaching Style among teachers who prefer Judicial Thinking (M=25.92, SD= 8.44) and among those who do not prefer Judicial Thinking (M=29.60, SD= 7.87). The preference for Formal Authority Teaching Style is significantly less for teachers who prefer Judicial Thinking, than those who do not prefer Judicial Thinking, [t=2.28, p<.05].

Table 52 shows that the preference for Personal Style teaching does not significantly differ between teachers who prefer Judicial Thinking (M=30.28, SD= 8.16) and those who do not prefer Judicial Thinking (M=31.56, SD= 7.66), [t=0.82, p>.05].

Table52 shows the mean scores of preferences for Facilitating Teaching Style among teachers who prefer Judicial Thinking (M=35.54, SD= 7.37) and among those who do not prefer Judicial Thinking (M=35.20, SD= 7.43). The preference for Facilitating Teaching Style is significantly more for teachers who prefer Judicial Thinking, than those who do not prefer Judicial Thinking, [t=2.34, p<.05].

Table 52 shows the mean scores of preferences for Delegating Teaching Style among teachers who prefer Judicial Thinking (M=32.28, SD= 8.61) and among those who do not prefer Judicial Thinking (M=27.34, SD= 9.48). The preference for Delegating Teaching Style is significantly more for teachers who prefer Judicial Thinking, than those who do not prefer Judicial Thinking, [t=2.84, p<.01].

To sum up the result of the extent of Teaching Styles by level of Judicial Thinking preference given in Table 52, concluded that, the preference for Facilitating and Delegating Teaching Style is significantly more for teachers who prefer Judicial Thinking. The preference for Formal Authority Teaching Style is significantly less for teachers who prefer Judicial Thinking. The preference for Expert and Personal Styles of teaching does not significantly differ between teachers who prefer Judicial Thinking and do not prefer Judicial Thinking. In brief, the preference for Judicial Thinking style of teachers influences their teaching styles. Teachers with Judicial Thinking preference tends to adopt Facilitating and Delegating styles of teaching. Teachers short of Executive Thinking preference tends to adopt Formal Authority style of teaching. Expert and Personal styles of teaching among teachers is independent of their preference for Judicial Thinking.

Influence of Monarchic Thinking Preference on Teaching Styles

Difference in extent of Teaching Styles by Monarchic Thinking Preference was studied using test of significance of difference between means. Mean scores of each of the five Teaching Styles of teachers who have high preference for Monarchic Thinking and those who have low preference for Monarchic Thinking were compared. Data and results are in Table 53.

Table 53

Comparison of the Extent of Teaching Styles by Level of Monarchic Thinking Preference

Teaching style (DV)	Level of Monarchic thinking style				't' value
	Low (N=75)		High (N=70)		
	M	SD	M	SD	
Expert	25.05	9.27	28.03	8.77	1.98*
Formal Authority	26.09	8.84	29.31	7.54	2.36*
Personal	30.93	7.88	30.19	7.67	0.58
Facilitator	37.36	7.24	33.74	6.89	3.08**
Delegator	30.53	9.25	28.90	8.26	1.12

Note: *p<.05, **p<.01;DV denotes Dependent Variable

Table53 shows the mean scores of preferences for Expert Teaching Style among teachers who prefer Monarchic Thinking (M=28.03, SD= 8.77) and among those who do not prefer Monarchic Thinking (M=25.05, SD= 9.27). The preference for Expert Teaching Style is significantly more for teachers who prefer Monarchic Thinking, than those who do not prefer Monarchic Thinking, [t=1.98, p<.05].

Table53 shows the mean scores of preferences for Formal Authority Teaching Style among teachers who prefer Monarchic Thinking (M=29.31, SD= 7.5354) and among those who do not prefer Monarchic Thinking (M=26.09, SD= 8.84). The preference for formal authority teaching style is significantly more for teachers who prefer Monarchic Thinking, than those who do not prefer monarchic thinking, [t=2.36, p<.05].

Table53 shows that the preference for Personal Style teaching does not significantly differ between teachers who prefer Monarchic Thinking

(M=30.19, SD= 7.67) and those who do not prefer Monarchic Thinking (M=30.93, SD= 7.88), [t=0.58, p>.05].

Table53 shows the mean scores of preferences for Facilitating Teaching Style among teachers who prefer Monarchic Thinking (M=33.74, SD= 6.89) and among those who do not prefer Monarchic Thinking (M=37.36, SD= 7.24). The preference for facilitating teaching style is significantly less for teachers who prefer Monarchic Thinking, than those who do not prefer Monarchic Thinking, [t=3.08, p<.01].

Table 53 shows that the preference for Delegating Style teaching does not significantly differ between teachers who prefer Monarchic Thinking (M=28.90, SD= 8.26) and those who do not prefer Monarchic Thinking (M=30.53, SD= 9.25), [t=1.12, p>.05].

The result of the extent of Teaching Styles by level of Monarchic thinking preference given in Table 53 concluded that, the preference for Expert and Formal Authority teaching style is significantly more for teachers who prefer Monarchic Thinking and the preference for Facilitating Teaching style is significantly less for teachers who prefer Monarchic Thinking. The preference for Personal and Delegating Styles of teaching does not significantly differ between teachers who prefer and do not prefer Monarchic Thinking.

In brief, the preference for Monarchic Thinking style of teachers influences their Teaching Styles. Teachers with Monarchic Thinking preference tends to adopt Expert and Formal Authority styles of teaching. Teachers short of Monarchic Thinking preference tends to adopt Facilitating style of teaching. Personal and Delegator styles of teaching among teachers is independent of their preference for Monarchic Thinking.

Influence of Hierarchic Thinking Preference on Teaching Styles

Difference in extent of Teaching Styles by Hierarchic Thinking Preference was studied using test of the significance of difference between means. Mean scores of each of the five teaching styles of teachers who have high preference for Hierarchic Thinking and those who have low preference for Hierarchic Thinking were compared. Data and results are in Table 54.

Table 54

Comparison of the Extent of Teaching Styles by Level of Hierarchic Thinking Preference

Teaching style (DV)	Level of Hierarchic thinking style				't' value
	Low (N=85)		High (N=48)		
	M	SD	M	SD	
Expert	27.60	9.01	22.75	9.06	2.98**
Formal Authority	28.45	8.37	27.40	9.08	0.66
Personal	31.89	7.25	29.63	7.69	1.67
Facilitator	34.56	7.28	38.77	6.74	3.36**
Delegator	27.52	9.44	31.44	8.68	2.42*

Note: *p<.05, **p<.01; DV denotes Dependent Variable

Table54 shows the mean scores of preferences for Expert Teaching Style among teachers who prefer Hierarchic Thinking (M=22.75, SD= 9.06) and among those who do not prefer Hierarchic Thinking (M=27.60, SD= 9.01). The preference for Expert Teaching Style is significantly less for teachers who prefer Hierarchic Thinking, than those who do not prefer Hierarchic Thinking, [t=3.08, p<.01].

Table54 shows that the preference for Formal Authority Style teaching does not significantly differ between teachers who prefer Hierarchic Thinking

(M=27.40, SD= 9.08) and those who do not prefer Hierarchic Thinking (M=28.45, SD= 8.37), [t=0.66, p>.05].

Table54 shows that the preference for Personal Style teaching does not significantly differ between teachers who prefer Hierarchic Thinking (M=29.63, SD= 7.69) and those who do not prefer Hierarchic Thinking (M=31.89, SD= 7.25), [t=1.67, p>.05].

Table54 shows the mean scores of preferences for Facilitating Teaching Style among teachers who prefer Hierarchic Thinking (M=38.77, SD= 6.74) and among those who do not prefer Hierarchic Thinking (M=34.56, SD= 7.28). The preference for Facilitating Teaching Style is significantly more for teachers who prefer Hierarchic Thinking, than those who do not prefer Hierarchic Thinking, [t=3.36, p<.01].

Table54 shows the mean scores of preferences for Delegating Teaching Style among teachers who prefer Hierarchic Thinking (M=31.44, SD= 8.68) and among those who do not prefer Hierarchic Thinking (M=27.52, SD= 9.44). The preference for Delegating Teaching Style is significantly more for teachers who prefer Hierarchic Thinking, than those who do not prefer Hierarchic Thinking, [t=2.42, p<.05].

The result of the extent of Teaching Styles by level of Hierarchic Thinking preference given inTable54 reveals that, the preference for Expert Teaching Style is significantly less far teachers who prefer Hierarchic Thinking, the preference for Facilitating and Delegating styles of teaching is significantly more for teachers who prefer Hierarchic Thinking. Besides, the preference for Formal Authority and Personal Styles of teaching does not significantly differ between teachers who prefer and do not prefer Hierarchic Thinking.

To sum up, it can be concluded that the preference for Hierarchic Thinking style of teachers influences their Teaching Styles. Teachers with Hierarchic Thinking preference tends to adopt Facilitating and Delegating styles of teaching. Teachers short of Hierarchic Thinking preference tends to adopt Expert style of teaching. Personal and Formal Authority styles of teaching among teachers is independent of their preference for Hierarchic Thinking.

Influence of Oligarchic Thinking Preference on Teaching Styles

Difference in extent of Teaching Styles by Oligarchic Thinking Preference was studied using test of significance of difference between means. Mean scores of each of the five teaching styles of teachers who have high preference for Oligarchic Thinking and those who have low preference for Oligarchic Thinking were compared. Data and results are in Table 55.

Table 55

Comparison of the Extent of Teaching Styles by Level of Oligarchic Thinking Preference

Teaching style (DV)	Level of Oligarchic Thinking Style				't' value
	Low (N=99)		High (N=72)		
	M	SD	M	SD	
Expert	23.86	7.77	27.54	9.09	2.77**
Formal Authority	29.14	8.25	26.81	8.50	1.79
Personal	30.74	7.29	31.61	7.56	0.76
Facilitator	36.73	7.02	34.88	7.71	1.61
Delegator	29.59	7.70	29.14	9.50	0.33

Note: **p<.01; DV denotes Dependent Variable

Table55 shows the mean scores of preferences for Expert Teaching Style among teachers who prefer Oligarchic Thinking (M=27.54, SD= 9.09)

and among those who do not prefer Oligarchic Thinking (M=23.86, SD= 7.77). The preference for Expert Teaching Style is significantly more for teachers who prefer Oligarchic thinking, than those who do not prefer Oligarchic Thinking, [t=2.77, p<.01].

Table55shows that the preference for Formal Authority Style teaching does not significantly differ between teachers who prefer Oligarchic Thinking (M=26.81, SD= 8.50) and those who do not prefer Oligarchic Thinking (M=29.14, SD= 8.25), [t=1.79, p>.05].

Table 55 shows that the preference for Personal Style teaching does not significantly differ between teachers who prefer Oligarchic Thinking (M=31.61, SD= 7.56) and those who do not prefer Oligarchic Thinking (M=30.74, SD= 7.29), [t=0.76, p>.05].

Table55 shows that the preference for Facilitating Style teaching does not significantly differ between teachers who prefer Oligarchic Thinking (M=34.88, SD= 7.71) and those who do not prefer Oligarchic Thinking (M=36.73, SD= 7.02), [t=1.61, p>.05].

Table55 shows that the preference for Delegating Style teaching does not significantly differ between teachers who prefer Oligarchic Thinking (M=29.14, SD=9.50) and those who do not prefer Oligarchic Thinking (M=29.59, SD= 7.70), [t=0.33, p>.05].

The result in connection with the extent of Teaching Styles by level of Oligarchic Thinking preference given in Table 55, concluded that, the preference for Expert Teaching Style is significantly more for teachers who prefer Oligarchic Thinking and the preference for Formal Authority, Personal, Facilitating and Delegating Styles of teaching does not significantly differ between teachers who prefer and do not prefer Oligarchic Thinking. To sum up, the Teachers with Oligarchic Thinking preference tends to adopt Expert

style of teaching. Formal Authority, Personal, Facilitating and Delegating styles of teaching of secondary school teachers is independent of their preference for Oligarchic Thinking.

Influence of Anarchic Thinking Preference on Teaching Styles

Difference in extent of Teaching Styles by Anarchic Thinking Preference was studied using test of significance of difference between means. Mean scores of each of the five Teaching Styles of teachers who have high preference for Anarchic Thinking and those who have low preference for Anarchic Thinking were compared. Data and results are in Table 56.

Table 56

Comparison of the Extent of Teaching Styles by Level of Anarchic Thinking Preference

Teaching style (DV)	Level of Anarchic Thinking style				't' value
	Low (N=94)		High (N=47)		
	M	SD	M	SD	
Expert	25.63	9.46	25.28	8.69	0.22
Formal Authority	27.76	8.33	26.98	8.46	0.52
Personal	30.09	6.91	31.89	6.29	1.56
Facilitator	36.21	7.08	35.79	7.57	0.32
Delegator	30.36	8.23	30.04	10.01	0.19

Note: DV denotes Dependent Variable

Table56 shows that the preference for Expert Style teaching does not significantly differ between teachers who prefer Anarchic Thinking (M=25.28, SD= 8.69) and those who do not prefer Anarchic Thinking (M=25.63, SD= 9.46), [t=0.22, p>.05].

Table56 shows that the preference for Formal Authority style teaching does not significantly differ between teachers who prefer Anarchic Thinking (M=26.98, SD= 8.46) and those who do not prefer Anarchic Thinking (M=27.76, SD= 8.33), [t=0.52, p>.05].

Table56 shows that the preference for Personal Style teaching does not significantly differ between teachers who prefer Anarchic Thinking (M=31.89, SD= 6.29) and those who do not prefer Anarchic Thinking (M=30.09, SD= 6.91), [t=1.56, p>.05].

Table 56 shows that the preference for Facilitating Style teaching does not significantly differ between teachers who prefer Anarchic Thinking (M=35.79, SD= 7.57) and those who do not prefer Anarchic Thinking (M=36.21, SD= 7.08), [t=0.32, p>.05].

Table56 shows that the preference for Delegating Style teaching does not significantly differ between teachers who prefer Anarchic Thinking (M=30.04, SD= 10.01) and those who do not prefer Anarchic Thinking (M=30.36, SD= 8.23), [t=0.19, p>.05].

The result shows that the preference for five Teaching Styles (Expert, Formal Authority Personal, Facilitator and Delegator) does not significantly differ between teachers who prefer Anarchic Thinking and those who do not prefer Anarchic Thinking. In brief, Teaching Styles of secondary school teachers is independent of their preference for Anarchic Thinking.

Influence of Global Thinking Preference on Teaching Styles

Difference in extent of Teaching Styles by Global Thinking Preference was studied using test of significance of difference between means. Mean scores of each of the five teaching styles of teachers who have high preference

for Global Thinking and those who have low preference for Global Thinking were compared. Data and results are in Table 57.

Table 57

Comparison of the Extent of Teaching Styles by Level of Global Thinking Preference

Teaching style (DV)	Level of Global thinking style				't' value
	Low (N=100)		High (N=73)		
	M	SD	M	SD	
Expert	23.63	8.31	27.59	8.18	3.12**
Formal Authority	26.44	7.58	27.51	8.66	0.84
Personal	31.54	7.17	32.70	8.02	0.98
Facilitator	37.33	6.04	33.55	7.31	3.61**
Delegator	31.09	7.74	28.77	10.31	1.62

Note: **p<.01;DV denotes Dependent Variable

Table57 shows the mean scores of preferences for Expert Teaching Style among teachers who prefer Global Thinking (M=27.59, SD= 8.18) and among those who do not prefer Global Thinking (M=23.63, SD= 8.31). The preference for Expert Teaching Style is significantly more for teachers who prefer Global Thinking, than those who do not prefer Global Thinking, [t=3.12, p<.01].

Table57 shows that the preference for Formal Authority style teaching does not significantly differ between teachers who prefer Global Thinking (M=27.51, SD= 8.66) and those who do not prefer Global Thinking (M=26.44, SD= 7.58), [t=0.84, p>.05].

Table57 shows that the preference for Personal Style teaching does not significantly differ between teachers who prefer Global Thinking (M=32.70,

SD= 8.02) and those who do not prefer Global Thinking (M=31.54, SD= 7.17), [t=0.98, p>.05].

Table57 shows the mean scores of preferences for Facilitating Teaching Style among teachers who prefer Global Thinking (M=33.55, SD= 7.31) and among those who do not prefer Global Thinking (M=37.33, SD= 6.04). The preference for Facilitating Teaching Style is significantly less for teachers who prefer Global Thinking, than those who do not prefer Global Thinking, [t=3.61, p<.01].

Table57 shows that the preference for Delegating Style teaching does not significantly differ between teachers who prefer Global Thinking (M=28.77, SD= 10.31) and those who do not prefer Global Thinking (M=31.09, SD= 7.74), [t=1.62, p>.05].

The results in connection with the extent of Teaching Styles by level of Global Thinking preference given inTable57 reveals that, the preference for Expert Teaching Style is significantly more for teachers who prefer Global Thinking. The preference for Facilitating Teaching Style is significantly less for teachers who prefer Global Thinking. However, the preference for Formal Authority, Personal, and Delegating Styles of teaching does not significantly differ between teachers who prefer and do not prefer Global Thinking.

In brief, the teachers with Global Thinking preference tend to adopt Expert style of teaching. Teachers short of Global Thinking preference tend to adopt Facilitating style of teaching. Formal Authority, Personal, Personal and Delegating styles of teaching of secondary school teachers is independent of their preference for Global Thinking.

Influence of Local Thinking Preference on Teaching Styles

Difference in extent of Teaching Styles by Local Thinking Preference was studied using test of significance of difference between means. Mean scores of each of the five teaching styles of teachers who have high preference for Local Thinking and those who have low preference for Local Thinking were compared. Data and results are in Table 58.

Table 58

Comparison of the Extent of Teaching Styles by Level of Local Thinking Preference

Teaching style (DV)	Level of Local Thinking Style				't' value
	Low (N=84)		High (N=69)		
	M	SD	M	SD	
Expert	27.25	8.31	22.75	7.97	3.41**
Formal Authority	27.94	8.78	25.67	7.60	1.72
Personal	32.44	7.76	32.13	6.95	0.26
Facilitator	33.90	7.38	38.01	5.35	3.99**
Delegator	28.56	10.28	31.46	7.87	1.98*

Note: *p<.05, **p<.01;DV denotes Dependent Variable

Table58 shows the mean scores of preferences for Expert Teaching Style among teachers who prefer Local Thinking (M=22.75, SD= 7.97) and among those who do not prefer Local Thinking (M=27.25, SD= 8.31). The preference for Expert Teaching Style is significantly less for teachers who prefer Local Thinking, than those who do not prefer Local Thinking, [t=3.41, p<.01].

Table58 shows that the preference for Formal Authority Style teaching does not significantly differ between teachers who prefer Local Thinking

(M=25.67, SD= 7.60) and those who do not prefer Local Thinking (M=27.94, SD= 8.78), [t=1.72, p>.05].

Table58 shows that the preference for Personal Style teaching does not significantly differ between teachers who prefer Local Thinking (M=32.13, SD= 6.95) and those who do not prefer Local Thinking (M=32.44, SD= 7.76), [t=0.26, p>.05].

Table58 shows the mean scores of preferences for Facilitating Teaching Style among teachers who prefer Local Thinking (M=38.01, SD= 5.35) and among those who do not prefer Local Thinking (M=33.90, SD= 7.38). The preference for Facilitating Teaching Style is significantly more for teachers who prefer Local Thinking, than those who do not prefer Local Thinking, [t=3.99, p<.01].

Table 58 shows the mean scores of preferences for Delegating Teaching Style among teachers who prefer Local Thinking (M=31.46, SD= 7.87) and among those who do not prefer Local Thinking (M=28.56, SD= 10.28). The preference for Delegating Teaching Style is significantly more for teachers who prefer Local Thinking, than those who do not prefer Local Thinking, [t=1.98, p<.05].

The results related with the extent of Teaching Styles by level of Local Thinking preference given in Table 58, reveal that, the preference for Facilitating and Delegating Styles of teaching is significantly more for teachers who prefer Local Thinking. The preference for formal authority and personal styles of teaching does not significantly differ between teachers who prefer and do not prefer Local Thinking. Moreover, the preference for expert teaching style is significantly less for teachers who prefer Local Thinking.

Briefly, the preference for Local Thinking of teachers influences their Teaching Styles. Teachers with Local Thinking preference tends to adopt

Facilitating and Delegating styles of teaching. Teachers short of Local Thinking preference tends to adopt Expert style teaching. Formal Authority and Personal style teaching among teachers is independent of their preference for Local Thinking.

Influence of External Thinking Preference on Teaching Styles

Difference in extent of Teaching Styles by External Thinking Preference was studied using test of significance of difference between means. Mean scores of each of the five Teaching Styles of teachers who have high preference for External Thinking and those who have low preference for External Thinking were compared. Data and results are in Table 59.

Table 59

Comparison of the Extent of Teaching Styles by Level of External Thinking Preference

Teaching style (DV)	Level of External Thinking Style				't' value
	Low (N=93)		High (N=73)		
	M	SD	M	SD	
Expert	26.01	7.07	25.89	9.34	0.09
Formal Authority	28.35	7.50	27.45	9.24	0.68
Personal	30.72	7.71	32.32	7.59	1.33
Facilitator	36.48	6.41	35.10	7.57	1.25
Delegator	28.44	8.20	29.36	10.08	0.62

Note: DV denotes Dependent Variable

Table59shows that the preference for Expert Style teaching does not significantly differ between teachers who prefer External Thinking (M=25.89, SD= 9.34) and those who do not prefer External Thinking (M=26.01, SD= 7.07), [t=0.09, p>.05].

Table59shows that the preference for Formal Authority Style teaching does not significantly differ between teachers who prefer External Thinking (M=27.45, SD= 9.24) and those who do not prefer External Thinking (M=28.35, SD= 7.50), [t=0.68, p>.05].

Table59shows that the preference for Personal Style teaching does not significantly differ between teachers who prefer External Thinking (M=32.32, SD= 7.59) and those who do not prefer External Thinking (M=30.72, SD= 7.71), [t=1.33, p>.05].

Table59shows that the preference for Facilitating Style teaching does not significantly differ between teachers who prefer External Thinking (M=35.10, SD= 7.57) and those who do not prefer External Thinking (M=36.48, SD= 6.41), [t=1.25, p>.05].

Table 59 shows that the preference for Delegating Style teaching does not significantly differ between teachers who prefer External Thinking (M=29.36, SD= 10.08) and those who do not prefer External Thinking (M=28.44, SD= 8.20), [t=0.62, p>.05].

The result shows that the preference for five Teaching Styles (Expert, Formal Authority Personal, Facilitator and Delegator) does not significantly differ between teachers who prefer External Thinking and those who do not prefer External Thinking. Also be concluded that Teaching Styles of secondary school teachers is independent of their preference for External Thinking.

Influence of Internal Thinking Preference on Teaching Styles

Difference in extent of Teaching Styles by Internal Thinking Preference was studied using test of significance of difference between means. Mean scores of each of the five Teaching Styles of teachers who have

high preference for Internal Thinking and those who have low preference for Internal Thinking were compared. Data and results are in Table 60.

Table 60

Comparison of the Extent of Teaching Styles by Level of Internal Thinking Preference

Teaching style (DV)	Level of Internal Thinking Style				't' value
	Low (N=85)		High (N=74)		
	M	SD	M	SD	
Expert	26.34	9.57	26.47	7.43	0.10
Formal Authority	27.75	9.21	28.78	7.72	0.77
Personal	32.02	7.67	30.55	8.01	1.17
Facilitator	34.78	7.60	36.01	6.44	1.11
Delegator	29.24	9.79	28.19	8.41	0.72

Note: DV denotes Dependent Variable

Table60 shows that the preference for Expert Style teaching does not significantly differ between teachers who prefer Internal Thinking (M=26.47, SD= 7.43) and those who do not prefer Internal Thinking (M=26.34, SD= 9.57), [t=0.10, p>.05].

Table 60 shows that the preference for Formal Authority Style teaching does not significantly differ between teachers who prefer Internal Thinking (M=28.78, SD= 7.72) and those who do not prefer Internal Thinking (M=27.75, SD= 9.21), [t=0.77, p>.05].

Table60 shows that the preference for Personal Style teaching does not significantly differ between teachers who prefer Internal Thinking (M=30.55, SD= 8.01) and those who do not prefer Internal Thinking (M=32.02, SD= 7.67), [t=1.17, p>.05].

Table 60 shows that the preference for Facilitating Style teaching does not significantly differ between teachers who prefer Internal Thinking (M=36.01, SD= 6.44) and those who do not prefer Internal Thinking (M=34.78, SD= 7.60), [t=1.11, p>.05].

Table60 shows that the preference for Delegating Style teaching does not significantly differ between teachers who prefer Internal Thinking (M=28.19, SD= 8.41) and those who do not prefer Internal Thinking (M=29.24, SD= 9.79), [t=0.72, p>.05].

The result shows that the preference for five Teaching Styles (Expert, Formal Authority, Personal, Facilitator and Delegator) does not significantly differ between teachers who prefer Internal Thinking and those who do not prefer Internal Thinking. In brief, Teaching Styles of secondary school teachers is independent of their preference for Internal Thinking.

Influence of Liberal Thinking Preference on Teaching Styles

Difference in extent of Teaching Styles by Liberal Thinking Preference was studied using test of significance of difference between means. Mean scores of each of the five Teaching Styles of teachers who have high preference for Liberal Thinking and those who have low preference for Liberal Thinking were compared. Data and results are in Table 61.

Table 61

Comparison of the Extent of Teaching Styles by Level of Liberal Thinking Preference

Teaching style (DV)	Level of Liberal Thinking Style				't' value
	Low (N=55)		High (N=74)		
	M	SD	M	SD	
Expert	27.47	7.09	24.22	9.11	2.28*
Formal Authority	29.51	8.06	27.59	8.13	1.32
Personal	33.73	7.04	29.97	7.90	2.84**
Facilitator	32.67	7.25	37.84	6.36	4.21**
Delegator	26.76	9.45	30.36	7.92	2.29*

Note: *p<.05, **p<.01;DV denotes Dependent Variable

Table61shows the mean scores of preferences for Expert Teaching Style among teachers who prefer Liberal Thinking (M=24.22, SD= 9.11) and among those who do not prefer Liberal Thinking(M=27.47, SD= 7.09). The preference for Expert Teaching Style is significantly less for teachers who prefer Liberal Thinking, than those who do not prefer Liberal Thinking, [t=2.28, p<.05].

Table 61 shows that the preference for Formal Authority Style teaching does not significantly differ between teachers who prefer Liberal Thinking(M=27.59, SD= 8.13) and those who do not prefer Liberal Thinking(M=29.51, SD= 8.06), [t=1.32, p>.05].

Table61 shows the mean scores of preferences for Personal Teaching Style among teachers who prefer Liberal Thinking(M=29.97, SD= 7.90) and among those who do not prefer Liberal Thinking (M=33.73, SD= 7.04). The preference for Personal Teaching Style is significantly less for teachers who prefer Liberal Thinking, than those who do not prefer Liberal Thinking, [t=2.84, p<.01].

Table 61 shows the mean scores of preferences for Facilitating Teaching Style among teachers who prefer Liberal Thinking(M=37.84, SD= 6.36) and among those who do not prefer Liberal Thinking (M=32.67, SD= 7.25). The preference for Facilitating Teaching Style is significantly more for teachers who prefer Liberal Thinking, than those who do not prefer Liberal Thinking, [t=4.21, p<.01].

Table 61 shows the mean scores of preferences for Delegating Teaching Style among teachers who prefer Liberal Thinking (M=30.36, SD= 7.92) and among those who do not prefer Liberal Thinking (M=26.76, SD= 9.45). The preference for Delegating Teaching Style is significantly more for

teachers who prefer Liberal Thinking, than those who do not prefer Liberal Thinking, [t=2.29, p<.05].

Table 61 reveals that the preference for Expert and Personal Styles of teaching is significantly less for teachers who prefer Liberal Thinking. The preference for Facilitating and Delegating teaching styles are significantly more for teachers who prefer Liberal Thinking, and preference for Formal Authority Style teaching does not significantly differ between teachers who prefer and do not prefer Liberal Thinking.

To sum up, preference for Liberal thinking of teachers influences their Teaching Styles. Teachers with Liberal thinking preference tends to adopt Facilitating and Delegating styles of teaching. Teachers short of Liberal thinking preference tends to adopt Expert and Personal styles of teaching. Formal Authority style teaching among teachers is independent of their preference for Liberal thinking.

Influence of Conservative Thinking Preference on Teaching Styles

Difference in extent of Teaching Styles by Conservative Thinking Preference was studied using test of significance of difference between means. Mean scores of each of the five teaching styles of teachers who have high preference for Conservative Thinking and those who have low preference for Conservative Thinking were compared. Data and results are in Table 62.

Table 62

Comparison of the Extent of Teaching Styles by Level of Conservative Thinking Preference

Teaching style (DV)	Level of Conservative Thinking Style				't' value
	Low (N=79)		High (N=63)		
	M	SD	M	SD	
Expert	24.23	8.97	28.33	7.71	2.93**
Formal Authority	27.18	8.33	29.44	8.09	1.63
Personal	30.05	7.71	32.94	7.16	2.31*
Facilitator	37.76	6.51	32.56	7.09	4.50**
Delegator	30.77	7.94	26.86	9.24	2.67**

Note: *p<.05, **p<.01;DV denotes Dependent Variable

Table62 shows the mean scores of preferences for Expert Teaching Style among teachers who prefer Conservative Thinking (M=28.33, SD= 7.71) and among those who do not prefer Conservative Thinking (M=24.23, SD= 8.97). The preference for Expert Teaching Style is significantly more for teachers who prefer Conservative Thinking, than those who do not prefer Conservative Thinking, [t=2.93, p<.01].

Table62 shows that the preference for Formal Authority Style teaching does not significantly differ between teachers who prefer Conservative Thinking (M=29.44, SD= 8.09) and those who do not prefer Conservative Thinking (M=27.18, SD= 8.33), [t=1.63, p>.05].

Table62 shows the mean scores of preferences for Personal Teaching Style among teachers who prefer Conservative Thinking (M=32.94, SD= 7.16) and among those who do not prefer Conservative Thinking (M=30.05, SD= 7.71). The preference for Personal Teaching Style is significantly more for teachers who prefer Conservative Thinking, than those who do not prefer Conservative Thinking, [t=2.31, p<.05].

Table62 shows the mean scores of preferences for Facilitating Teaching Style among teachers who prefer Conservative Thinking (M=32.56, SD= 7.09) and among those who do not prefer Conservative Thinking (M=37.76, SD= 6.51). The preference for Facilitating Teaching Style is significantly less for teachers who prefer Conservative Thinking, than those who do not prefer Conservative Thinking, [t=4.50, p<.01].

Table62 shows the mean scores of preferences for Delegating Teaching Style among teachers who prefer Conservative Thinking (M=26.86, SD= 9.24) and among those who do not prefer Conservative Thinking (M=30.77, SD= 7.94). The preference for Delegating Teaching Style is significantly less for teachers who prefer Conservative Thinking, than those who do not prefer Conservative Thinking, [t=2.67, p<.01].

The results reveal that the preference for Expert and Personal Teaching Styles are significantly more for teachers who prefer Conservative Thinking, and the preference for Facilitating and Delegating Styles of teaching is significantly less for teachers who prefer Conservative Thinking. The preference for Formal Authority Style teaching does not significantly differ between teachers who prefer and do not prefer Conservative Thinking.

To sum up, preference for Conservative Thinking of teachers influences their Teaching Styles. Teachers with Conservative thinking preference tend to adopt Expert and Personal styles of teaching. Teachers short of Liberal thinking preference tend to adopt Facilitating and Delegating styles of teaching. Formal Authority style teaching among teachers is independent of their preference for Conservative thinking.

Influence of Big Five Factors on Teaching Styles

Influence of Big Five personality traitson Teaching Styles were studied via comparing the extent of each of the five Teaching Styles by level

preference for each of five personality factors viz., Extraversion, Neuroticism, and Openness to Experience, Agreeableness and Conscientiousness.

Influence of Extraversion on Teaching Styles

Difference in extent of Teaching Styles by Extraversion was studied using test of significance of difference between means. Mean scores of each of the five Teaching Styles of teachers who have high Extraversion and those who have low Extraversion were compared. Data and results are in Table 63.

Table 63

Comparison of the Extent of Teaching Styles by Level of Extraversion

Teaching style (DV)	Level of Extraversion factor				't' value
	Low (N=93)		High (N=72)		
	M	SD	M	SD	
Expert	27.62	8.22	25.36	9.48	1.61
Formal Authority	28.97	7.47	28.11	8.54	0.67
Personal	30.98	8.23	30.75	7.89	0.18
Facilitator	33.75	6.33	36.38	6.63	2.57*
Delegator	28.70	8.29	29.47	9.05	0.56

Note: *p<.05; DV denotes Dependent Variable

Table 63 shows that the preference for Expert Style teaching does not significantly differ between teachers who have high Extraversion (M=25.36, SD= 9.48) and those who have low Extraversion (M=27.62, SD= 8.22), [t=1.61, p>.05].

Table63 shows that the preference for Formal Authority Style teaching does not significantly differ between teachers who high Extraversion (M=28.11, SD= 8.54) and those who have low Extraversion (M=28.97, SD= 7.47), [t=0.67, p>.05].

Table63shows that the preference for Personal Style teaching does not significantly differ between teachers who high Extraversion (M=30.75, SD= 7.89) and those who low Extraversion (M=30.98, SD= 8.23), [t=0.18, p>.05].

Table63 shows the mean scores of preferences for Facilitating Teaching Style among teachers who high Extraversion (M=36.38, SD= 6.63) and among those who low Extraversion (M=33.75, SD= 6.33). The preference for Facilitating Teaching Style is significantly more for teachers who high Extraversion, than those who do low Extraversion, [t=2.57, p<.05].

Table63shows that the preference for Delegating Style teaching does not significantly differ between teachers who high Extraversion (M=29.47, SD= 9.05) and those who low Extraversion (M=28.70, SD= 8.29), [t=1.61, p>.05].

Table63 reveals that the preference for Facilitating Teaching Style is significantly more for teachers who have high Extraversion, and the preference for Expert, Formal Authority, Personal and Delegating styles of teaching does not significantly differ between teachers having high and low Extraversion. In brief, Teachers with high Extraversion trait tends to adopt Facilitating styles of teaching. Expert, Formal Authority, Personal and Delegating style teaching among teachers is independent of their Extraversion trait.

Influence of Neuroticism on Teaching Styles

Difference in extent of Teaching Styles by Neuroticism was studied using test of significance of difference between means. Mean scores of each of the five Teaching Styles of teachers who have high Neuroticism and those who have low Neuroticism were compared. Data and results are in Table 64.

Table 64

Comparison of the Extent of Teaching Styles by Level of Neuroticism

Teaching style (DV)	Level of Neuroticism factor				't' value
	Low (N=97)		High (N=136)		
	M	SD	M	SD	
Expert	24.74	9.02	26.38	8.81	1.38
Formal Authority	26.76	8.24	28.75	7.97	1.80
Personal	30.67	7.71	32.19	6.88	1.55
Facilitator	37.56	6.92	34.71	6.98	3.09**
Delegator	30.26	8.68	28.03	8.74	1.93

Note: **p<.01;DV denotes Dependent Variable

Table 64 shows that the preference for Expert Style teaching does not significantly differ between teachers who have high Neuroticism (M=26.38, SD= 8.81) and those who do not have high Neuroticism (M=24.74, SD= 9.02), [t=1.38, p>.05].

Table64 shows that the preference for Formal Authority Style teaching does not significantly differ between teachers who have high Neuroticism (M=28.75, SD= 7.97) and those who do not have high Neuroticism (M=26.76, SD= 8.24), [t=1.80, p>.05].

Table64 shows that the preference for Personal Teaching Style does not significantly differ between teachers who have high score in Neuroticism (M=32.19, SD= 6.88) and those who do not have high score in Neuroticism (M=30.67, SD= 7.71), [t=1.55, p>.05].

Table64 shows the mean scores of preferences for Facilitating Teaching Style among teachers who have high score in Neuroticism(M=34.71, SD= 6.98) and among those who do not have high score in Neuroticism (M=37.56, SD= 6.92). The preference for Facilitating Teaching Style is significantly less for teachers who have high score in

Neuroticism, than those who do not have high score in Neuroticism, [t=3.09, p<.01].

Table64 shows that the preference for Delegating Style teaching does not significantly differ between teachers who have high score in Neuroticism (M=28.03, SD= 8.74) and those who do not have high score in Neuroticism (M=30.26, SD= 8.68), [t=1.93, p>.05].

The results revealed that the preference for Facilitating Teaching Style is significantly less for teachers who have high score in Neuroticism and the preference for Expert, Formal Authority, Personal and Delegating Styles of teaching does not significantly differ between teachers who have high score in Neuroticism and do not have high score in Neuroticism.

Influence of Openness to Experience on Teaching Styles

Difference in extent of Teaching Styles by Openness to Experience was studied using test of significance of difference between means. Mean scores of each of the five Teaching Styles of teachers who have high score for Openness to Experience and those who have low score for Openness to Experience were compared. Data and results are in Table 65.

Table 65

Comparison of the Extent of Teaching Styles by Level of Openness to Experience

Teaching style (DV)	Level of Openness to Experience factor				't' value
	Low (N=76)		High (N=68)		
	M	SD	M	SD	
Expert	25.83	8.92	23.65	8.69	1.49
Formal Authority	28.92	8.08	26.62	8.54	1.66
Personal	31.84	7.11	30.87	8.07	0.76
Facilitator	35.84	6.81	36.87	7.15	0.88
Delegator	27.54	8.92	32.01	8.31	3.12**

Note: **p<.01;DV denotes Dependent Variable

Table65 shows that the preference for Expert Style teaching does not significantly differ between teachers who have high score in Openness to Experience (M=23.65, SD= 8.69) and those who do not have high score in Openness to Experience (M=25.83, SD= 8.92), [t=1.49, p>.05].

Table65 shows that the preference for Formal Authority Style teaching does not significantly differ between teachers who have high score in Openness to Experience (M=26.62, SD= 8.54) and those who do not have high score in Openness to Experience (M=28.92, SD= 8.08), [t=1.66, p>.05].

Table65 shows that the preference for Personal Style teaching does not significantly differ between teachers who have high score in Openness to Experience (M=30.87, SD= 8.07) and those who do not have high score in Openness to Experience (M=31.84, SD= 7.11), [t=0.76, p>.05].

Table65 shows that the preference for Facilitating Style teaching does not significantly differ between teachers who have high score in Openness to Experience (M=36.87, SD= 7.15) and those who do not have high score in Openness to Experience (M=35.84, SD= 6.81), [t=0.88, p>.05].

Table65 shows the mean scores of preferences for Delegating Teaching Style among teachers who have high score in Openness to Experience (M=32.01, SD= 8.31) and among those who do not have high score in Openness to Experience (M=27.54, SD= 8.92). The preference for Delegating Teaching Style is significantly more for teachers who have high score in Openness to Experience, than those who do not have high score inOpenness to Experience, [t=3.12, p<.01].

The results reveal that the preference for Delegating Teaching Style is significantly more for teachers who have high Openness to Experience and, the preference for Expert, Formal Authority, Personal and Facilitator Styles of

teaching does not significantly differ between teachers who have and do not have high score in Openness to Experience.

Influence of Agreeableness on Teaching Styles

Difference in extent of Teaching Styles by Agreeableness was studied using test of significance of difference between means. Mean scores of each of the five Teaching Styles of teachers who have high score for Agreeableness and those who have low score for Agreeableness were compared. Data and results are in Table 66.

Table 66

Comparison of the Extent of Teaching Styles by Level of Agreeableness

Teaching style (DV)	Level of Agreeableness factor				't' value
	Low (N=78)		High (N=72)		
	M	SD	M	SD	
Expert	27.59	8.54	23.11	8.40	3.24**
Formal Authority	28.73	7.66	26.86	9.03	1.36
Personal	30.86	7.87	31.42	7.79	0.44
Facilitator	33.53	6.17	37.07	6.97	3.28**
Delegator	29.38	9.04	31.54	9.53	1.42

Note: **p<.01;DV denotes Dependent Variable

Table66 shows the mean scores of preferences for Expert Teaching Style among teachers who have high score in Agreeableness(M=23.11, SD= 8.40) and among those who do not have high score in Agreeableness (M=27.59, SD= 8.54). The preference for Expert Teaching Style is significantly less for teachers who have high Agreeableness, than those who do not have high Agreeableness, [t=3.24, p<.01].

Table66 shows that the preference for Formal Authority Style teaching does not significantly differ between teachers who have high Agreeableness

(M=26.86, SD= 9.03) and those who do not have high Agreeableness (M=28.73, SD= 7.66), [t=1.36, p>.05].

Table66 shows that the preference for Personal Style teaching does not significantly differ between teachers who have high Agreeableness (M=31.42, SD= 7.79) and those who do not have high Agreeableness (M=30.86, SD= 7.87), [t=0.44, p>.05].

Table66 shows the mean scores of preferences for Facilitating Teaching Style among teachers who have high Agreeableness (M=37.07, SD= 6.97) and among those who do not have high Agreeableness (M=33.53, SD= 6.17). The preference for Facilitating Teaching Style is significantly more for teachers who have high Agreeableness, than those who do not have high Agreeableness, [t=3.28, p<.01].

Table66 shows that the preference for Delegating Style teaching does not significantly differ between teachers who have high Agreeableness (M=31.54, SD= 9.53) and those who have low Agreeableness (M=29.38, SD= 9.04), [t=1.42, p>.05].

The results reveal that the preference for Facilitating Teaching Style is significantly more for teachers who have high Agreeableness and, the preference for Expert style is significantly less for teachers who have high Agreeableness. Formal Authority, Personal and Delegator Styles of teaching do not significantly differ between teachers who have high Agreeableness and do not have high score in Agreeableness.

Influence of Conscientiousness on Teaching Styles

Difference in extent of Teaching Styles by Conscientiousness was studied using test of significance of difference between means. Mean scores of each of the five Teaching Styles of teachers who have high

Conscientiousness and those who have low Conscientiousness were compared. Data and results are in Table 67.

Table 67

Comparison of the Extent of Teaching Styles by Level of Conscientiousness

Teaching style (DV)	Level of Conscientiousness factor				't' value
	Low (N=75)		High (N=73)		
	M	SD	M	SD	
Expert	27.21	9.09	23.67	9.83	2.27*
Formal Authority	27.99	8.11	28.21	8.27	1.16
Personal	31.67	8.39	30.95	7.48	0.55
Facilitator	33.31	7.21	37.07	7.32	3.15**
Delegator	29.84	8.74	30.11	8.72	1.89

Note: *p<.05, **p<.01;DV denotes Dependent Variable

Table67shows the mean scores of preferences for Expert Teaching Style among teachers who have high Conscientiousness (M=23.67, SD= 9.83) and among those who do not have high Conscientiousness (M=27.21, SD= 9.09). The preference for Expert Teaching Style is significantly less for teachers who have high Conscientiousness, than those having low Conscientiousness, [t=2.27, p<.05].

Table67 shows that the preference for Formal Authority Style teaching does not significantly differ between teachers who have high score in Conscientiousness (M=28.21, SD= 8.27) and those who have low Conscientiousness (M=27.99, SD= 8.11), [t=1.16, p>.05].

Table67 shows that the preference for Personal Style teaching does not significantly differ between teachers who have high Conscientiousness (M=30.95, SD= 7.48) and those who have low Conscientiousness (M=31.67, SD= 8.39), [t=0.55, p>.05].

Table 67 shows the mean scores of preferences for Facilitating Teaching Style among teachers who have high Conscientiousness (M=37.07, SD= 7.32) and among those who have low Conscientiousness (M=33.31, SD= 7.21). The preference for Facilitating Teaching Style is significantly more for teachers who have high score in Conscientiousness, than those who do not have high score in Conscientiousness, [t=3.15, p<.01].

Table67 shows that the preference for Delegating Style teaching does not significantly differ between teachers who have high Conscientiousness (M=30.11, SD= 8.72) and those who have low Conscientiousness (M=29.84, SD= 8.74), [t=1.89, p>.05].

The results revealed that the preference for Facilitating Teaching Style is significantly more for teachers who have high score in Conscientiousness and, the preference for Expert Teaching Style is significantly less for teachers who have high score in Conscientiousness. Moreover, the preference for Formal Authority, Personal and Delegator Styles of teaching does not significantly differ between teachers who have and do not have high score in Conscientiousness.

Tenability of Hypotheses

Tenability of the hypotheses formulated for the study was verified in view of the findings and are commented below.

Hypotheses 1 state that "*there is no significant gender- based difference in the disposition of Secondary School Teachers to: (i) Expert Teaching Style, (ii) Formal Authority Teaching Style, (iii) Personal Teaching Style, (iv) Facilitator Teaching Style, and (v) Delegator Teaching Style*".

Analysis of the data revealed that:

1.1 Preference for Expert Teaching Style Teaching does not significantly differ between female teachers and male teachers for the total sample, [t=1.89, p>.05].

1.2 The preference for Formal Authority Style teaching does not significantly differ between female teachers and male teachers for the total sample, [t=1.14, p>.05].

1.3 The preference for Personal Style teaching does not significantly differ between female teachers and male teachers for the total sample, [t=0.65, p>.05].

1.4 The preference for Facilitator Style teaching does not significantly differ between female teachers and male teachers for the total sample, [t=0.28, p>.05].

1.5 The preference for Delegating Teaching Style is significantly less for female teachers than male teachers [t=1.99, p<.05], i.e., male teachers have the tendency to prefer delegation than female teachers.

Hence the hypotheses 1(i),1 (ii), 1 (iii) and 1 (iv) are accepted and hypothesis 1 (v)is rejected.

Hypotheses 2 state that "*there is no significant difference by educational qualification in the disposition of Secondary School Teachers to : i) Expert Teaching Style, (ii) Formal Authority Teaching Style, (iii) Personal Teaching Style, (iv) Facilitator Teaching Style, and (v) Delegator Teaching Style"*.

Analysis of the data revealed that:

2.1 The preference for Expert Teaching Style is significantly less for post graduate teachers than graduate teachers [t=3.02, p<.01].

2.2 The preference for Formal Authority Teaching Style does not significantly differ between post graduate teachers and graduate teachers for the total sample, [t=0.67, p>.05].

2.3 The preference for Personal Teaching Style does not significantly differ between post graduate teachers and graduate teachers for the total sample, [t=0.13, p>.05].

2.4 The preference for Facilitating Teaching Style is significantly more for post graduate teachers than graduate teachers, [t=2.21, p<.05].

2.5 The preference for Delegating Teaching Style does not significantly differ between post graduate teachers and graduate teachers for the total sample, [t=1.91, p>.05].

Hence the Hypotheses 2(i) and 2 (iv) are rejected andhypotheses2 (ii),2 (iii), and 2 (v) are accepted.

Hypotheses 3 state that "*there is no significant difference by teaching-subject in the disposition of Secondary School Teachers to: i) Expert Teaching Style, (ii) Formal Authority Teaching Style, and (iii) Personal Teaching Style, (iv) Facilitator Teaching Style, and v) Delegator Teaching Style*".

Analysis of data revealed that:

3.1 The main effect of type of Teaching Subject on Expert teaching style is significant ,[F (4,295)=2.60, *p*<.05].

3.2 The main effect of type of Teaching Subject on Formal Authority teaching style is significant , [F (4,295)=3.17, *p*<.05].

3.3 The main effect of type of Teaching Subject on Personal teaching style is significant, [F (4,295) =3.96, *p*<.01].

3.4 The main effect of type of Teaching Subject on Facilitating teaching style is not significant, [F (4,295) =1.16, p>.05].

3.5 The main effect of type of Teaching Subject on Delegating teaching style is not significant, [F (4,295) =1.41, p>.05].

Hence Hypotheses 3 (i), 3(ii), 3(iii) are rejected, and, hypotheses 3(iv), and 3 (v) are accepted.

Hypotheses 4 state that "*there is no significant difference by type of management of school in the disposition of Secondary School Teachers to: (i) Expert Teaching Style, (ii) Formal Authority Teaching Style,.(iii) Personal Teaching Style, (iv) Facilitator Teaching Style and (v) Delegator Teaching Style*".

Analysis of data revealed that :

4.1 The main effect of type of school management on expert teaching style is significant, [F (2,297)=9.26, p<.01].

4.2 The main effect of type of school management for type of school management on Formal Authority teaching style is significant, [F (2,297)=6.58, p<.01].

4.3 The main effect of type of school management for type of school management on Personal teaching style is significant, [F (2,297)=3.86,p<.05].

4.4 The main effect of type of school management for type of school management on Facilitating teaching style is not significant, [F (2,297)=1.67, p >.05].

4.5 The main effect of type of school management on Delegator teaching style is significant, [F (2,297)=6.83, p<.01].

Hence, Hypotheses 4 (i),4 (ii), 4(iii), and 4 (v) are rejected, and hypothesis 4 (iv) is accepted.

Hypotheses 5 state that "*there is no significant difference by teaching experience in the disposition of Secondary School Teachers to: (i) Expert Teaching Style,(ii) Formal Authority Teaching Style,(iii) Personal Teaching Style,(iv) Facilitator Teaching Style, and (v) Delegator Teaching Style*".

Analysis of data revealed that:

5.1 The main effect of teaching experience of Secondary School Teachers on Expert teaching style (F (2,296)=.65 p>.05) is not significant.

5.2 The main effect of teaching experience of Secondary School Teachers on Formal Authority Teaching Style (F (2,296) = .21 p>.05) is not significant.

5.3 The main effect of teaching experience of Secondary School Teachers on Personal teaching style (F(2,296)=.16 p>.05) is not significant.

5.4 The main effect of teaching experience of Secondary School Teachers on Facilitator teaching style (F (2,296) =.23 p>.05) not significant.

5.5 The main effect of teaching experience of Secondary School Teachers on Delegator teaching style (F (2,296) =.31 p>.05) are not significant.

Hence, Hypotheses 5 (i), 5 (ii), 5(iii), 5(iv) and 5 (v) are not rejected.

Hypotheses 6 (i) states that "*there exist significant difference in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style,(b) Formal Authority Teaching Style,(c) Personal Teaching Style,(d) Facilitator Teaching Style, and (e) Delegator Teaching Style, by their preference for Visual Learning"*.

Analysis of data revealed that:

6.1. (a) The preference for Expert Style teaching does not significantly differ between teachers who prefer Visual Learning and those who do not prefer Visual Learning, [t=0.73, p>.05].

6.1. (b) The preferences for Formal Authority Teaching Style is significantly more for teachers who prefer Visual Learning [t=2.41, p<.05].

6.1. (c) The preference for Personal Style teaching does not significantly differ between teachers who prefer Visual Learning and those who do not prefer Visual Learning, [t=1.27, p>.05].

6.1. (d) The preference for Facilitator Style teaching does not significantly differ between teachers who prefer Visual Learning and those who do not prefer Visual Learning, [t=0.80, p>.05].

6.1. (e) The preference for Delegator Style teaching does not significantly differ between teachers who prefer Visual Learning and those who do not prefer Visual Learning, [t=1.27, p>.05].

Hence, Hypothesis 6 (i) (b) is accepted and hypotheses6.1. (a), 6.1. (c), 6.1. (d), and 6.1. (e)are not accepted.

Hypotheses 6 (ii) state that *"there exist significant difference in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style,(b) Formal Authority Teaching Style,(c) Personal Teaching Style,(d) Facilitator Teaching Style, and (e) Delegator Teaching Style, by their preference for Visual Letter Learning"*.

Analysis of data revealed that

6 (ii) (a). The preference for Expert Teaching Style is significantly more for teachers who prefer Visual Letter Learning, than those who do not prefer Visual Letter Learning, [t=2.83, p<.01].

6 (ii) (b) The preference for Formal Authority Teaching Style is significantly more for teachers who prefer Visual Letter Learning, than those who do not prefer Visual Letter Learning, [t=2.51, p<.05].

6 (ii) (c)The preference for Personal Style teaching does not significantly differ between teachers who prefer Visual Letter Learning and those who do not prefer Visual Letter Learning, [t=0.82, p>.05].

6 (ii) (d)The preference for Facilitating Teaching Style is significantly less for teachers who prefer Visual Letter Learning, than those who do not prefer Visual Letter Learning, [t=3.89, p<.01].

6 (ii) (e)The preference for Delegating Teaching Style is significantly less for teachers who prefer Visual Letter Learning, than those who do not prefer Visual Letter Learning, [t=2.67, p<.01].

Hence, Hypotheses 6 (ii) (a), 6 (ii) (b), 6 (ii) (d), and 6 (ii) (e), are accepted and hypotheses 6 (ii) (e) is not accepted.

Hypotheses 6 (iii) state that "*there exist significant difference in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style,(b) Formal Authority Teaching Style,(c) Personal Teaching Style,(d) Facilitator Teaching Style, and (e) Delegator Teaching Style, by their preference for Auditory Learning"*.

Analysis of data revealed that

6 (iii) (a) The preference for Expert Style teaching does not significantly differ between teachers who prefer Auditory Learning and those who do not prefer Auditory Learning ,[t=0.67, p>.05].

6 (iii) (b) The preference for Formal Authority Style teaching does not significantly differ between teachers who prefer Auditory Learning and those who do not prefer Auditory Learning, [t=1.47, p>.05].

6 (iii) (c) The preference for Personal Style teaching does not significantly differ between teachers who prefer Auditory Learning and those who do not prefer Auditory Learning ,[t=0.81, p>.05].

6 (iii) (d) The preference for Facilitating Style teaching does not significantly differ between teachers who prefer Auditory Learning and those who do not prefer Auditory Learning ,[t=1.72, p>.05].

6 (iii) (e) The preference for Delegating Style teaching does not significantly differ between teachers who prefer Auditory Learning and those who do not prefer Auditory Learning ,[t=1.32, p>.05].

Hence, Hypotheses 6 (iii) is not accepted.

Hypotheses 6 (iv) state that "*there exist significant difference in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style,(b) Formal Authority Teaching Style,(c) Personal Teaching Style,(d) Facilitator Teaching Style, and (e) Delegator Teaching Style, by their preference for Kinesthetic Learning*".

Analysis of data revealed that:

6 (iv) (a) The preference for Expert Teaching Style is significantly less for teachers who prefer Kinesthetic Learning, than those who do not prefer Kinesthetic Learning, [t=2.50, p<.05].

6 (iv) (b) The preference for Formal Authority Teaching Style is significantly less for teachers who prefer Kinesthetic Learning, than those who do not prefer Kinesthetic Learning, [t=2.23, p<.05].

6 (iv) (c) The preference for Personal Style teaching does not significantly differ between teachers who prefer Kinesthetic Learning and those who do not prefer Kinesthetic Learning, [t=1.46, p>.05].

6 (iv) (d) The preference for Facilitating Style teaching does not significantly differ between teachers who prefer Kinesthetic Learning and those who do not prefer Kinesthetic Learning, [t=1.76, p>.05].

6 (iv) (e) The preference for Delegating Style teaching does not significantly differ between teachers who prefer Kinesthetic Learning and those who do not prefer Kinesthetic Learning, [t=1.91, p>.05].

Hence, Hypotheses 6 (iv) (a) and (b) is accepted whereas hypotheses 6 (iv) (c), (d) and (e) are not accepted.

Hypotheses 7 (i) state that "*there exist significant difference in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style,(b) Formal Authority Teaching Style,(c) Personal Teaching Style,(d) Facilitator Teaching Style, and (e) Delegator Teaching Style, by their preference for Legislative Thinking*".

Analysis of data revealed that:

7 (i) (a) The preference for Expert Style teaching does not significantly differ between teachers who prefer Legislative Thinking and those who do not prefer Legislative Thinking ,[t=0.86, p>.05].

7 (i) (b)The preference for Formal Authority Teaching Style is significantly less for teachers who prefer Legislative Thinking, than those who do not prefer Legislative Thinking, [t=2.08, p<.05].

7 (i) (c)The preference for Personal Style teaching does not significantly differ between teachers who prefer Legislative Thinking and those who do not prefer Legislative Thinking, [t=1.32, p>.05].

7 (i) (d)The preference for Facilitating Style teaching does not significantly differ between teachers who prefer Legislative Thinking and those who do not prefer Legislative Thinking, [t=0.26, p>.05].

7 (i) (e)The preference for Delegating Teaching Style is significantly more for teachers who prefer Legislative Thinking, than those who do not prefer Legislative Thinking, [t=3.86, p<.01].

Hence, Hypotheses 7 (i) (b) and 7 (i) (e) are accepted and Hypotheses 7 (i) (a), 7 (i) (c), and 7 (i) (d) are not accepted .

Hypotheses 7 (ii) state that "*there exist significant difference in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style,(b) Formal Authority Teaching Style,(c) Personal Teaching Style,(d) Facilitator Teaching Style, and (e) Delegator Teaching Style, by their preference for Executive Thinking*".

Analysis of data revealed that:

7 (ii) (a) The preference for Expert Style teaching does not significantly differ between teachers who prefer Executive Thinking and those who do not prefer Executive Thinking ,[t=0.82, p>.05].

7 (ii) (b) The preference for Formal Authority Teaching Style is significantly more for teachers who prefer Executive Thinking, than those who do not prefer Executive Thinking, [t=3.58, p<.01].

7 (ii) (c) The preference for Personal Teaching Style is significantly more for teachers who prefer Executive Thinking, than those who do not prefer Executive Thinking, [t=2.35, p<.05].

7 (ii) (d) The preference for Facilitator Style teaching does not significantly differ between teachers who prefer Executive Thinking and those who do not prefer Executive Thinking, [t=1.01, p>.05].

7 (ii) (e) The preference for Delegating Teaching Style is significantly less for teachers who prefer Executive Thinking, than those who do not prefer Executive Thinking, [t=5.44, p<.01].

Hence, Hypotheses 7 (ii) (b) , 7 (ii) (c) and 7 (ii) (e) are accepted and hypotheses 7(ii) (a) and 7 (ii) (d) are rejected.

Hypotheses 7 (iii)*state that "there exist significant difference in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style,(b) Formal Authority Teaching Style,(c) Personal Teaching Style,(d) Facilitator Teaching Style, and (e) Delegator Teaching Style, by their preference for Judicial Thinking".*

Analysis of data revealed that:

7 (iii) (a) The preference for Expert Style teaching does not significantly differ between teachers who prefer Judicial Thinking and those who do not prefer Judicial Thinking , [t=0.21, p>.05].

7 (iii) (b) The preference for Formal Authority Teaching Style is significantly less for teachers who prefer Judicial Thinking, than those who do not prefer Judicial Thinking, [t=2.28, p<.05].

7 (iii) (c) The preference for Personal Style teaching does not significantly differ between teachers who prefer Judicial Thinking and those who do not prefer Judicial Thinking, [t=0.82, p>.05].

7 (iii) (d) The preference for Facilitating Teaching Style is significantly more for teachers who prefer Judicial Thinking, than those who do not prefer Judicial Thinking, [t=2.34, p<.05].

7 (iii) (e) The preference for Delegating Teaching Style is significantly more for teachers who prefer Judicial Thinking, than those who do not prefer Judicial Thinking, [t=2.84, p<.01].

Hence, Hypotheses 7 (iii) (a) and 7 (iii) (c) are rejected and hypotheses 7 (iii) (b) 7(iii) (d) and 7 (ii) (e) are accepted.

Hypotheses 7 (iv)*state that "there exist significant difference in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style, (b) Formal Authority Teaching Style, (c) Personal Teaching Style, (d) Facilitator Teaching Style, and (e) Delegator Teaching Style, by their preference for Monarchic Thinking".*

Analysis of data revealed that:

7 (iv) (a) the preference for Expert Teaching Style is significantly more for teachers who prefer Monarchic Thinking, than those who do not prefer Monarchic Thinking, [t=1.98, p<.05].

7 (iv) (b) The preference for formal authority teaching style is significantly more for teachers who prefer Monarchic Thinking, than those who do not prefer monarchic thinking, [t=2.36, p<.05].

7 (iv) (c) The preference for personal style teaching does not significantly differ between teachers who prefer Monarchic Thinking and those who do not prefer Monarchic Thinking , [t=0.58, p>.05].

7 (iv) (d) The preference for facilitating teaching style is significantly less for teachers who prefer Monarchic Thinking, than those who do not prefer Monarchic Thinking, [t=3.08, p<.01].

7 (iv) (e) The preference for delegating style teaching does not significantly differ between teachers who prefer Monarchic Thinking and those who do not prefer Monarchic Thinking, [t=1.12, p>.05].

Hence, Hypotheses 7 (iv) (a), 7 (iv) (b),and 7 (iv) (d) are accepted, and hypotheses 7 (iv) (c) and 7 (iv) (e) are rejected.

Hypotheses 7 (v)*state that "there exist significant difference in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style, (b) Formal Authority Teaching Style, (c) Personal Teaching Style, (d) Facilitator Teaching Style, and (e) Delegator Teaching Style, by their preference for Hierarchic Thinking".*

Analysis of data revealed that:

7 (v) (a) The preference for Expert Teaching Style is significantly less for teachers who prefer Hierarchic Thinking, than those who do not prefer Hierarchic Thinking, [t=3.08, p<.01].

7 (v) (b) The preference for Formal Authority Style teaching does not significantly differ between teachers who prefer Hierarchic Thinking and those who do not prefer Hierarchic Thinking, [t=0.66, p>.05].

7 (v) (c) The preference for Personal Style teaching does not significantly differ between teachers who prefer Hierarchic Thinking and those who do not prefer Hierarchic Thinking , [t=1.67, p>.05].

7 (v) (d) The preference for Facilitating Teaching Style is significantly more for teachers who prefer Hierarchic Thinking, than those who do not prefer Hierarchic Thinking, [t=3.36, p<.01].

7 (v) (e) The preference for Delegating Teaching Style is significantly more for teachers who prefer Hierarchic Thinking, than those who do not prefer Hierarchic Thinking, [t=2.42, p<.05].

Hence, Hypotheses 7 (v) (a),7 (v) (d) and 7 (v) (e) are accepted, and hypotheses7 (v) (b) and 7 (v) (c) are rejected.

Hypotheses 7 (vi)*state that "there exist significant difference in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style, (b) Formal Authority Teaching Style, (c) Personal Teaching Style, (d) Facilitator Teaching Style, and (e) Delegator Teaching Style, by their preference for Oligarchic Thinking".*

Analysis of data revealed that:

7 (vi) (a) The preference for Expert Teaching Style is significantly more for teachers who prefer Oligarchic thinking, than those who do not prefer Oligarchic thinking, [t=2.77, p<.01].

7 (vi) (b) The preference for Formal Authority Style teaching does not significantly differ between teachers who prefer Oligarchic Thinking and those who do not prefer Oligarchic Thinking, [t=1.79, p>.05].

7 (vi) (c) The preference for Personal Style teaching does not significantly differ between teachers who prefer Oligarchic Thinking and those who do not prefer Oligarchic Thinking, [t=0.76, p>.05].

7 (vi) (d) The preference for Facilitating Style teaching does not significantly differ between teachers who prefer Oligarchic Thinking and those who do not prefer Oligarchic Thinking ,[t=1.61, p>.05].

7 (vi) (e) The preference for Delegating Style teaching does not significantly differ between teachers who prefer Oligarchic Thinking and those who do not prefer Oligarchic Thinking, [t=0.33, p>.05].

Hence, Hypothesis 7 (vi) (a) is accepted whereas hypotheses 7 (vi) (b), 7 (vi) (c), 7 (vi) (d) and 7 (vi) (e) are rejected.

Hypotheses 7 (vii)*state that "there exist significant difference in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style, (b) Formal Authority Teaching Style, (c) Personal Teaching Style, (d) Facilitator Teaching Style, and (e) Delegator Teaching Style, by their preference for Anarchic Thinking".*

Analysis of data revealed that:

7 (vii) (a) The preference for Expert Style teaching does not significantly differ between teachers who prefer Anarchic Thinking and those who do not prefer Anarchic Thinking, [t=0.22, p>.05].

7 (vii) (b) The preference for Formal Authority style teaching does not significantly differ between teachers who prefer Anarchic Thinking and those who do not prefer Anarchic Thinking, [t=0.52, p>.05].

7 (vii) (c) The preference for Personal Style teaching does not significantly differ between teachers who prefer Anarchic Thinking and those who do not prefer Anarchic Thinking, [t=1.56, p>.05].

7 (vii) (d) The preference for Facilitating Style teaching does not significantly differ between teachers who prefer Anarchic Thinking and those who do not prefer Anarchic Thinking, [t=0.32, p>.05].

7 (vii) (e) The preference for Delegating Style teaching does not significantly differ between teachers who prefer Anarchic Thinking and those who do not prefer Anarchic Thinking, [t=0.19, p>.05].

Hence, all hypotheses 7 (vii) (a-e) are rejected.

Hypotheses 7 (viii)*state that "there exist significant difference in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style, (b) Formal Authority Teaching Style, (c) Personal Teaching Style, (d) Facilitator Teaching Style, and (e) Delegator Teaching Style, by their preference for Global Thinking".*

Analysis of data revealed that:

7 (viii) (a) The preference for Expert Teaching Style is significantly more for teachers who prefer Global Thinking, than those who do not prefer Global Thinking, [t=3.12, p<.01].

7 (viii) (b) The preference for Formal Authority style teaching does not significantly differ between teachers who prefer Global Thinking and those who do not prefer Global Thinking, [t=0.84, p>.05].

7 (viii) (c) The preference for Personal Style teaching does not significantly differ between teachers who prefer Global Thinking and those who do not prefer Global Thinking, [t=0.98, p>.05].

7 (viii) (d) The preference for Facilitating Teaching Style is significantly less for teachers who prefer Global Thinking, than those who do not prefer Global Thinking, [t=3.61, p<.01].

7 (viii) (e) The preference for Delegating Style teaching does not significantly differ between teachers who prefer Global Thinking and those who do not prefer Global Thinking, [t=1.62, p>.05].

Hence, Hypotheses 7 (viii) (a) and 7 (viii) (d) are accepted and hypotheses 7 (viii) (b), 7 (viii) (c), and 7 (viii) (e) are rejected.

Hypotheses 7 (ix)*state that "there exist significant difference in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style, (b) Formal Authority Teaching Style, (c) Personal Teaching Style, (d) Facilitator Teaching Style, and (e) Delegator Teaching Style, by their preference for Local Thinking"*.

Analysis of data revealed that:

7 (ix) (a) The preference for Expert Teaching Style is significantly less for teachers who prefer Local Thinking, than those who do not prefer Local Thinking, [t=3.41, p<.01].

7 (ix) (b) The preference for Formal Authority Style teaching does not significantly differ between teachers who prefer Local Thinking and those who do not prefer Local Thinking, [t=1.72, p>.05].

7 (ix) (c) The preference for Personal Style teaching does not significantly differ between teachers who prefer Local Thinking and those who do not prefer Local Thinking, [t=0.26, p>.05].

7 (ix) (d) The preference for Facilitating Teaching Style is significantly more for teachers who prefer Local Thinking than those who do not prefer Local Thinking, [t=3.99, p<.01].

7 (ix) (e) The preference for Delegating Teaching Style is significantly more for teachers who prefer Local Thinking, than those who do not prefer Local Thinking, [t=1.98, p<.05].

Hence, Hypotheses 7 (ix) (a), 7 (ix) (d) and 7 (ix) (e) are accepted whereas hypotheses 7 (ix) (b) and 7 (ix) (c) are rejected.

Hypotheses 7 (x) *state that "there exist significant difference in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style, (b) Formal Authority Teaching Style, (c) Personal Teaching Style, (d) Facilitator Teaching Style, and (e) Delegator Teaching Style, by their preference for External Thinking"*.

Analysis of data revealed that:

7 (x) (a) The preference for Expert Style teaching does not significantly differ between teachers who prefer External Thinking and those who do not prefer External Thinking ,[t=0.09, p>.05].

7 (x) (b) The preference for Formal Authority Style teaching does not significantly differ between teachers who prefer External Thinking and those who do not prefer External Thinking, [t=0.68, p>.05].

7 (x) (c) The preference for Personal Style teaching does not significantly differ between teachers who prefer External Thinking and those who do not prefer External Thinking, [t=1.33, p>.05].

7 (x) (d) The preference for Facilitating Style teaching does not significantly differ between teachers who prefer External Thinking and those who do not prefer External Thinking ,[t=1.25, p>.05].

7 (x) (e) The preference for Delegating Style teaching does not significantly differ between teachers who prefer External Thinking and those who do not prefer External Thinking ,[t=0.62, p>.05].

Hence, all of the hypotheses 7 (x) (a-e) are rejected.

Hypotheses 7 (xi)*state that "there exist significant difference in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style, (b) Formal Authority Teaching Style, (c) Personal Teaching Style, (d) Facilitator Teaching Style, and (e) Delegator Teaching Style, by their preference for Internal Thinking".*

Analysis of data revealed that:

7 (xi) (a) the preference for Expert Style teaching does not significantly differ between teachers who prefer Internal Thinking and those who do not prefer Internal Thinking, [t=0.10, p>.05].

7 (xi) (b) The preference for Formal Authority Style teaching does not significantly differ between teachers who prefer Internal Thinking and those who do not prefer Internal Thinking, [t=0.77, p>.05].

7 (xi) (c) The preference for Personal Style teaching does not significantly differ between teachers who prefer Internal Thinking (and those who do not prefer Internal Thinking, [t=1.17, p>.05].

7 (xi) (d) The preference for Facilitating Style teaching does not significantly differ between teachers who prefer Internal Thinking and those who do not prefer Internal Thinking, [t=1.11, p>.05].

7 (xi) (e) The preference for Delegating Style teaching does not significantly differ between teachers who prefer Internal Thinking and those who do not prefer Internal Thinking, [t=0.72, p>.05].

Hence, all of the hypotheses 7 (xi) (a-e) are rejected.

Hypotheses 7 (xii)*state that "there exist significant difference in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style, (b) Formal Authority Teaching Style, (c) Personal Teaching Style, (d) Facilitator Teaching Style, and (e) Delegator Teaching Style, by their preference for Conservative Thinking"*.

Analysis of data revealed that:

7 (xii) (a) the preference for Expert Teaching Style is significantly more for teachers who prefer Conservative Thinking, than those who do not prefer Conservative Thinking, [t=2.93, p<.01].

7 (xii)(b) The preference for Formal Authority Style teaching does not significantly differ between teachers who prefer Conservative Thinking and those who do not prefer Conservative Thinking, [t=1.63, p>.05].

7 (xii) (c) The preference for Personal Teaching Style is significantly more for teachers who prefer Conservative Thinking, than those who do not prefer Conservative Thinking, [t=2.31, p<.05].

7 (xii) (d) The preference for Facilitating Teaching Style is significantly less for teachers who prefer Conservative Thinking, than those who do not prefer Conservative Thinking, [t=4.50, p<.01].

7 (xii) (e) The preference for Delegating Teaching Style is significantly less for teachers who prefer Conservative Thinking, than those who do not prefer Conservative Thinking, [t=2.67, p<.01].

Hence, Hypotheses 7 (xii) (a), 7 (xii) (c), 7 (xii) (d) and 7 (xii) (e) are accepted and hypothesis 7 (xii) (b) is rejected.

Hypotheses 7 (xiii)*state that "there exist significant difference in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style, (b) Formal Authority Teaching Style, (c) Personal Teaching Style, (d) Facilitator Teaching Style, and (e) Delegator Teaching Style, by their preference for Liberal Thinking".*

Analysis of data revealed that:

7 (xiii) (a) The preference for Expert Teaching Style is significantly less for teachers who prefer Liberal Thinking, than those who do not prefer Liberal Thinking, [t=2.28, p<.05].

7 (xiii) (b) The preference for Formal Authority Style teaching does not significantly differ between teachers who prefer Liberal Thinking and those who do not prefer Liberal Thinking, [t=1.32, p>.05].

7 (xiii) (c) The preference for personal teaching style is significantly less for teachers who prefer Liberal Thinking, than those who do not prefer Liberal Thinking, [t=2.84, p<.01].

7 (xiii) (d) The preference for Facilitating Teaching Style is significantly more for teachers who prefer Liberal Thinking, than those who do not prefer Liberal Thinking, [t=4.21, p<.01].

7 (xiii) (e) The preference for Delegating Teaching Style is significantly more for teachers who prefer Liberal Thinking, than those who do not prefer Liberal Thinking, [t=2.29, p<.05].

Hence, Hypotheses 7 (xiii) (a), 7 (xiii) (c), 7 (xiii) (d) and 7 (xiii) (e) are accepted and hypothesis 7 (xiii) (b) is rejected.

Hypotheses 8 (i)*state that "there exist significant difference by Extraversion in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style, (b) Formal Authority Teaching Style, (c) Personal Teaching Style, (d) Facilitator Teaching Style, and (e) Delegator Teaching Style"*.

Analysis of data revealed that:

8 (i) (a)The preference for Expert Style teaching does not significantly differ between teachers with high Extraversion and those without high Extraversion, [t=1.61, p>.05].

8 (i) (b) The preference for Formal Authority Style teaching does not significantly differ between teachers with high Extraversion and those with low Extraversion, [t=0.67, p>.05].

8 (i) (c) The preference for Personal Style teaching does not significantly differ between teachers with high Extraversion and those with low Extraversion, [t=0.18, p>.05].

8 (i) (d) The preference for Facilitating Teaching Style is significantly more for teachers with high Extraversion, than those with low Extraversion, [t=2.57, p<.05].

8 (i) (e) The preference for Delegating Style teaching does not significantly differ between teachers with high Extraversion and those with low Extraversion, [t=1.61, p>.05].

Hence, Hypothesis 8 (i) (d) is accepted and 8 (i) (a), 8 (i) (b), 8 (i) (c) and 8 (i) (e) are rejected.

Hypotheses 8 (ii)*state that "there exist significant difference by Neuroticism in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style, (b) Formal Authority Teaching Style, (c) Personal Teaching Style, (d) Facilitator Teaching Style, and (e) Delegator Teaching Style".*

Analysis of data revealed that:

8 (ii) (a) The preference for Expert Style teaching does not significantly differ between teachers who have high score in Neuroticism and those who do not have high score in Neuroticism, [t=1.38, p>.05].

8 (ii) (b) The preference for Formal Authority Style teaching does not significantly differ between teachers who have high score in Neuroticism and those who do not have high score in Neuroticism, [t=1.80, p>.05].

8 (ii) (c) The preference for Personal Teaching does not significantly differ between teachers who have high score in Neuroticism and those who do not have high score in Neuroticism, [t=1.55, p>.05].

8 (ii) (d) The preference for Facilitating Teaching Style is significantly less for teachers who have high score in Neuroticism, than those who do not have high score in Neuroticism, [t=3.09, p<.01].

8 (ii) (e) The preference for Delegating Style teaching does not significantly differ between teachers who have high score in Neuroticism and those who do not have high score in Neuroticism, [t=1.93, p>.05].

Hence, Hypotheses8 (ii) (d) is accepted whereas hypotheses8 (ii) (a), 8 (ii) (b), 8 (ii) (c), and 8 (ii) (e) are rejected.

Hypotheses 8 (iii)*state that "there exist significant difference by Openness to experience in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style, (b) Formal Authority Teaching Style, (c) Personal Teaching Style, (d) Facilitator Teaching Style, and (e) Delegator Teaching Style".*

Analysis of data revealed that:

8 (iii) (a) The preference for Expert Style teaching does not significantly differ between teachers who have high score in Openness to Experience and those who do not have high score in Openness to Experience, [t=1.49, p>.05]. 8 (iii) (b) The preference for Formal Authority Style teaching does not significantly differ between teachers who have high score in Openness to Experience and those who do not have high score in Openness to Experience, [t=1.66, p>.05].

8 (iii) (c) The preference for Personal Style teaching does not significantly differ between teachers who have high score in Openness to Experience and those who do not have high score in Openness to Experience, [t=0.76, p>.05].

8 (iii) (d) The preference for Facilitating Style teaching does not significantly differ between teachers who have high score in Openness to Experience and those who do not have high score in Openness to Experience, [t=0.88, p>.05].

8 (iii) (e) The preference for Delegating Teaching Style is significantly more for teachers who have high score in Openness to Experience, than

those who do not have high score in Openness to Experience, [t=3.12, p<.01].

Hence, Hypothesis 8 (iii) (e) is accepted whereas hypotheses 8 (iii) (a), 8 (iii) (b), 8 (iii) (c) and 8 (iii) (d) are rejected.

Hypotheses 8 (iv)*state that "there exist significant difference by Agreeableness in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style, (b) Formal Authority Teaching Style, (c) Personal Teaching Style, (d) Facilitator Teaching Style, and (e) Delegator Teaching Style"*.

Analysis of data revealed that:

8 (iv) (a) The preference for Expert Teaching Style is significantly less for teachers who have high score in Agreeableness, than those who do not have high score in Agreeableness, [t=3.24, p<.01].

8 (iv) (b) The preference for Formal Authority Style teaching does not significantly differ between teachers who have high score in Agreeableness and those who do not have high score in Agreeableness, [t=1.36, p>.05].

8 (iv) (c) The preference for Personal Style teaching does not significantly differ between teachers who have high score in Agreeableness and those who do not have high score in Agreeableness, [t=0.44, p>.05].

8 (iv) (d) The preference for Facilitating Teaching Style is significantly more for teachers who have high score in Agreeableness, than those who do not have high score in Agreeableness, [t=3.28, p<.01].

8 (iv) (e) The preference for Delegating Style teaching does not significantly differ between teachers who have high score in Agreeableness and those who do not have high score in Agreeableness, [t=1.42, p>.05].

Hence, Hypotheses 8 (iv) (a) and 8 (iv) (d) are accepted whereas hypotheses 8 (iv) (b), 8 (iv) (c) and 8 (iv) (e) are rejected.

Hypotheses 8 (v)*state that "there exist significant difference by Conscientiousness in the disposition of teachers to each of the teaching styles viz., (a) Expert Teaching Style, (b) Formal Authority Teaching Style, (c) Personal Teaching Style, (d) Facilitator Teaching Style, and (e) Delegator Teaching Style".*

Analysis of data revealed that:

8 (v) (a) The preference for Expert Teaching Style is significantly less for teachers who have high score in Conscientiousness, than those who do not have high score in Conscientiousness, [t=2.27, p<.05].

8 (v) (b) The preference for Formal Authority Style teaching does not significantly differ between teachers who have high score in Conscientiousness and those who do not have high score in Conscientiousness, [t=1.16, p>.05].

8 (v) (c) The preference for Personal Style teaching does not significantly differ between teachers who have high score in Conscientiousness and those who do not have high score in Conscientiousness, [t=0.55, p>.05].

8 (v) (d) The preference for Facilitating Teaching Style is significantly more for teachers who have high score in Conscientiousness, than those who do not have high score in Conscientiousness, [t=3.15, p<.01].

8 (v) (e) The preference for Delegating Style teaching does not significantly differ between teachers who have high score in Conscientiousness and those who do not have high score in Conscientiousness, [t=1.89, p>.05].

Hence, Hypotheses 8 (v) (a) and 8 (v) (d) are accepted whereas hypotheses 8 (v) (b),8 (v) (c)and 8 (v) (e) are rejected.

Conclusion

Preference for teaching styles among secondary teachers in Kerala is in the sequence Facilitator, Personal, Delegator, Formal Authority and Expert style. The secondary school teachers thus favour student-centered teaching styles than teacher-centered teaching styles, as it is found that Formal Authority and Expert style are the most preferred styles. No gender difference in preference for Expert, Formal Authority, Personal and Facilitator Teaching Styles is evidenced. But, male than female teachers prefer delegator style. None of the teaching style preferences vary by teaching experience of secondary school teachers in Kerala.

Teacher-centered teaching styles are found more in Mathematics and Biology teachers, and Personal Styles are more in Social Science teachers. Preferences for student-centered teaching styles namely facilitator and delegator styles do not vary by teaching subject. Expert teaching style is significantly higher in mathematics teachers, in comparison to language and social science teachers in secondary schools. Formal authority teaching style is significantly less among language teachers in comparison to mathematics and biology teachers in secondary schools. Personal teaching style is highest among social science teachers (compared to language, mathematics, physical science and biology teachers); it is the least in mathematics teachers (compared to physical science, language and social studies teachers) in secondary schools.

Compared to teachers with under graduate degree only, teachers with post-graduation prefer Expert Style more and Facilitator Style less. No difference in extent of Formal Authority, Personal and Delegator Teaching Styles by educational qualification among secondary school teachers is evidenced.

Teacher-centered teaching styles, than student-centered teaching styles, are affected by the type of management, with government school teachers preferring Teacher-centered teaching styles less than others. Expert teaching style is preferred more by teachers in aided and unaided school than those in government schools. Formal authority teaching style is preferred more by teachers in aided school than those in government and unaided schools. Personal teaching style is preferred more by teachers in government schools than those in aided schools. Delegator teaching style is preferred more by teachers in aided school than those in government schools.

Visual Letter learning style favours teacher-centered teaching styles, and disfavor student-centered teaching styles. Teachers with visual letter learning preference are high expert and Formal authority teaching styles, and low on facilitator ad delegator teaching styles. Visual learning style favours Formal authority teaching style. Teachers with Kinesthetic learning preference disfavours teacher-centered styles. Visual learning favours Formal Authority style. In other words, Teachers with Kinesthetic learning preference are low on expert and formal authority teaching styles.

Functions of thinking influence teaching styles more than other dimensions of thinking styles; Executive thinking favours teacher-centered teaching styles; Legislative and Judicial thinking favour student-centered teaching styles. This means that Legislative thinking favours delegator teaching style and disfavours Formal Authority teaching style. Teachers high on Executive thinking style are also high on formal authority and Personal teaching style, and they are low on delegator teaching style. Teachers high on

judicial thinking style favours facilitator and delegator styles; Judicial thinking style is disfavourable to Formal authority teaching style.

Monarchic thinking favours teacher-centered styles and disfavours student-centered styles and the opposite is true of Hierarchic thinking styles. In specific, teachers high on Monarchic thinking styles have higher expert and formal authority teaching styles; but, monarchic style is disfavourable for facilitator and delegator styles. Hierarchic thinking styles favours facilitator and delegator teaching styles; it is disfavourable for expert teaching style. Oligarchic thinking style favours Expert teaching style. Extents of all the five teaching styles studied are independent of Anarchic thinking style. In other words, none of the teaching style is influenced by Anarchic thinking style.

High Global thinking among teacher's favours higher Expert teaching style and higher global thinking is associated with Facilitating style of teaching. The opposite is true for Local thinking style. None of the teaching styles differs by scope of thinking styles namely internal and external thinking styles of teachers. Liberal thinking style favours student-centered teaching styles and disfavours Expert and Personal teaching styles; the opposite is true for conservative thinking style.

Extraversion, Agreeableness and Conscientiousness of teachers favour Facilitator teaching style whereas neuroticism disfavors it; openness to Experiences among teachers favours Delegator teaching style; agreeableness and conscientiousness disfavor expert teaching style. Facilitating Teaching Style is significantly more for teachers high on Extraversion, than those who are low on Extraversion and is significantly less for teachers high on Neuroticism, than those low on Neuroticism. Delegating Teaching Style is significantly more for teachers high on Openness to Experience, than those low on Openness to Experience. Expert Teaching Style is significantly less for teachers high on Agreeableness, than those low on Agreeableness. Facilitating Teaching Style is significantly more for teachers high on

Agreeableness, than those low on Agreeableness. Expert Teaching Style is significantly less for teachers high on Conscientiousness, than those low on Conscientiousness. Facilitating Teaching Style is significantly more for teachers high on Conscientiousness, than those low on Conscientiousness.

CHAPTER V

SUMMARY, FINDINGS, AND SUGGESTIONS

- *Restatement of the Problem*
- *Variables in the study*
- *Hypotheses Tested*
- *Methodology*
- *Major Findings*
- *Conclusion*
- *Educational Implications of the Study*
- *Suggestions for Further Research*

In the beginning of this study, a few research questions were raised. As a result the answers have been found at this stage. This chapter presents the investigation in a nutshell. It includes a brief account of the various aspects of the research like variables, objectives, hypotheses and methodology. It also compiles the major findings and illumines a final conclusion about the investigation. It clarifies the educational implications of the study and provides some suitable suggestions for further research.

Restatement of the Problem

"Influence of Select Psychological Variables on teaching Styles of Secondary School Teachers of Kerala"

Variables in the Study

The study follows descriptive survey method. It employs dependent variables, independent variables and classificatory variables.

Dependent variables

The Dependent Variables selected for the study were Teaching Styles. It has five types, namely,

1. Expert
2. Formal Authority
3. Personal
4. Facilitator
5. Delegator

Independent variables

The Independent Variables selected for the study were learning styles, thinking styles and big five personality traits.

1. Learning Styles

This study has four learning styles namely,

i. Visual
ii. Visual Letter
iii. Auditory
iv. Kinesthetic

2. Thinking Styles

There are thirteen thinking styles under five dimensions namely,

i. Functions
ii. Forms
iii. Levels
iv. Scope
v. Leanings

[Legislative, Executive, Judicial, Monarchic, Hierarchic, Oligarchic, Anarchic, Global, Local, External, Internal, Conservative and Liberal]

3. **Big five Personality Traits**

This include five personality traits namely,

i. Extraversion
ii. Neuroticism
iii. Openness to Experience
iv. Agreeableness
v. Conscientiousness

Classificatory Variables

Gender, Educational Qualifications, Teaching Experience, Teaching Subject and Type of School Management of Secondary School teachers are considered as classificatory variables.

Hypotheses Tested

The following hypotheses were framed and tested in the present study.

1) There is no significant gender- based difference in the disposition of Secondary School Teachers to:

   i. Expert Teaching Style
   ii. Formal Authority Teaching Style
   iii. Personal Teaching Style
   iv. Facilitator Teaching Style
   v. Delegator Teaching Style.

2) There is no significant difference by educational qualification in the disposition of Secondary School Teachers to:

   i. Expert Teaching Style
   ii. Formal Authority Teaching Style
   iii. Personal Teaching Style
   iv. Facilitator Teaching Style
   v. Delegator Teaching Style.

3) There is no significant difference by teaching-subject in the disposition of Secondary School Teachers to:

   i. Expert Teaching Style
   ii. Formal Authority Teaching Style
   iii. Personal Teaching Style

iv. Facilitator Teaching Style
v. Delegator Teaching Style.

4) There is no significant difference by type of management of school in the disposition of Secondary School Teachers to:

i. Expert Teaching Style
ii. Formal Authority Teaching Style
iii. Personal Teaching Style
iv. Facilitator Teaching Style
v. Delegator Teaching Style.

5) There is no significant difference by teaching experience in the disposition of Secondary School Teachers to:

i. Expert Teaching Style
ii. Formal Authority Teaching Style
iii. Personal Teaching Style
iv. Facilitator Teaching Style
v. Delegator Teaching Style.

6) (i) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Visual Learning.

6) (ii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Visual Letter Learning

6) (iii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Auditory Learning.

6) (iv) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

by their preference for Kinesthetic Learning.

7) (i) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

by their preference for Legislative Thinking Style.

7) (ii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Executive Thinking Style.

7) (iii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

by their preference for Judicial Thinking Style.

7) (iv) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

by their preference for Monarchic Thinking Style.

7) (v) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Hierarchic Thinking Style.

7) (vi) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Oligarchic Thinking Style.

7) (vii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Anarchic Thinking Style.

7) (viii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Global Thinking Style.

7) (ix) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Local Thinking Style.

7) (x) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for External Thinking Style.

7) (xi) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Internal Thinking Style.

7) (xii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Conservative Thinking Style.

7) (xiii) There exists significant difference in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style

by their preference for Liberal Thinking Style.

8) (i) There exists significant difference by *Extraversion* in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

8) (ii) There exists significant difference by *Neuroticism* in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

8) (iii) There exists significant difference by *Openness to Experience* in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style

b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

8) (iv) There exists significant difference by *Agreeableness* in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

8) (v) There exists significant difference by *Conscientiousness* in the disposition of teachers to each of the teaching styles viz.,

a. Expert Teaching Style
b. Formal Authority Teaching Style
c. Personal Teaching Style
d. Facilitator Teaching Style, and
e. Delegator Teaching Style.

Methodology Revisited

The methodology followed for the present study is outlined below.

The study was conducted on a sample of 300 secondary school teachers belonging to Malappuram, Kozhikode, Palakkad, Kasargod, and Wayanad districts in Kerala.

Stratified random technique was used. Due representation was given to gender, teaching experience teaching subject, type of management and educational qualifications.

The data for the study were collected using the tools as described below.

1. Teaching Style Inventory (Gafoor & Babu, 2013)

The Dependent Variable Teaching style (score for each style, not total score) was measured using the TSI developed and standardized by Gafoor &Babu (2013).

2. Thinking Style Inventory (Gafoor &Babu, 2013)

The Thinking style (score for each style, not total score) was quantified by using Thinking Style Inventory. The TSI was developed and standardized by Gafoor & Babu (2013).

3. Edmonds Learning Style Identification Exercise (ELSIE) (Reinert,1976)

The Edmonds Learning Style Identification Exercise (ELSIE) was a standardized tool developed by Reinert (1976),used to quantify four learning styles.

4. Calicut University Personality Inventory (CUPI) (Sasidharan,2007).

The Calicut University Personality Inventory (CUPI) was used to quantify personality traits of five dimensions. The CUPI was developed and standardized by Sasidharan, (2007).

Following statistical techniques were utilized for the processing of data in the present study.

(i) Test of Significance of Difference Between Means

To compare the extent of teaching styles by levels of different learning styles, thinking styles and personality traits and to study the sex difference

and differences in educational qualifications in Dependent Variables, this statistical procedure was used.

(ii) Analysis of Variance

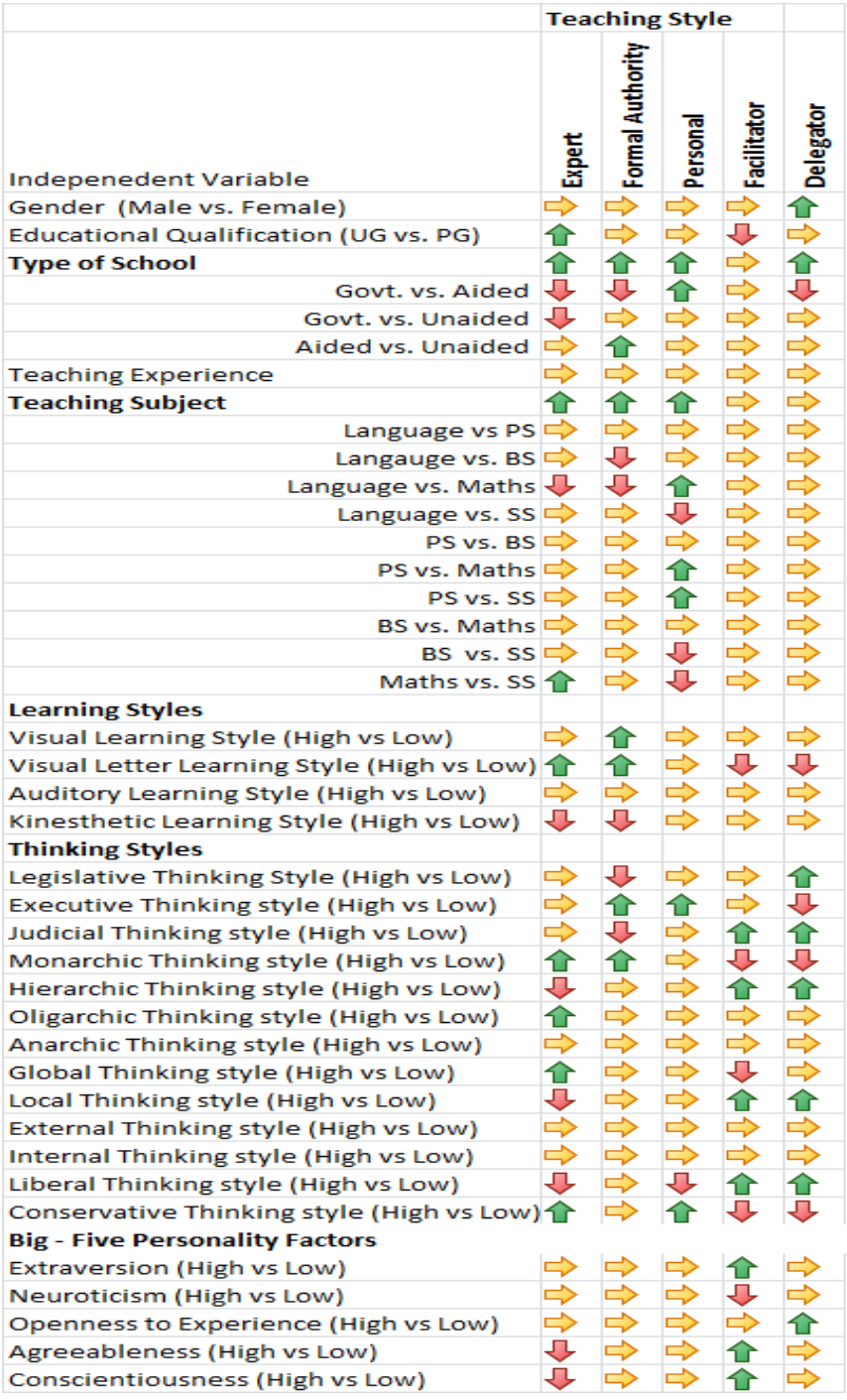
One way ANOVA, used to find out the effect of teaching experience (four groups) on teaching styles. One way ANOVA also employed for testing the effects of type of school management (three types) and the effects of teaching subjects (five groups) on teaching styles. The test of significance of difference between means to find the group difference; wherever significant F values are obtained.

Major Findings

I. Order of the extent of preferences of teaching styles among secondary teachers in Kerala is Facilitator, Personal, Delegator, Formal Authority and Expert styles.

1. The most preferred teaching style of secondary school teachers is facilitating style (M= 35.55, SD=7.04).
2. The second most preferred teaching style of secondary school teachers is personal style (M= 31.22, SD=7.55).
3. The third most preferred teaching style of secondary school teachers is delegator style (M= 29.31, SD=8.86).
4. The second least preferred teaching style of secondary school teachers is formal authority teaching style (M= 28.01, SD=8.20).
5. The least preferred teaching style of secondary school teachers is Expert style (M= 25.95, SD=8.79).

To obtain sum total of influences on teaching styles of secondary school teachers of Kerala, a diagrammatic summary of the results of all the pair wise comparison of means conducted in this study is provided in Figure 6.



	Teaching Style				
Indepenedent Variable	Expert	Formal Authority	Personal	Facilitator	Delegator
Gender (Male vs. Female)	→	→	→	→	↑
Educational Qualification (UG vs. PG)	↑	→	→	↓	→
Type of School	↑	↑	↑	→	↑
Govt. vs. Aided	↓	↓	↑	→	↓
Govt. vs. Unaided	↓	→	→	→	→
Aided vs. Unaided	→	↑	→	→	→
Teaching Experience	→	→	→	→	→
Teaching Subject	↑	↑	↑	→	→
Language vs PS	→	→	→	→	→
Langauge vs. BS	→	↓	→	→	→
Language vs. Maths	↓	↓	↑	→	→
Language vs. SS	→	→	↓	→	→
PS vs. BS	→	→	→	→	→
PS vs. Maths	→	→	↑	→	→
PS vs. SS	→	→	↑	→	→
BS vs. Maths	→	→	→	→	→
BS vs. SS	→	→	↓	→	→
Maths vs. SS	↑	→	↓	→	→
Learning Styles					
Visual Learning Style (High vs Low)	→	↑	→	→	→
Visual Letter Learning Style (High vs Low)	↑	↑	→	↓	↓
Auditory Learning Style (High vs Low)	→	→	→	→	→
Kinesthetic Learning Style (High vs Low)	↓	↓	→	→	→
Thinking Styles					
Legislative Thinking Style (High vs Low)	→	↓	→	→	↑
Executive Thinking style (High vs Low)	→	↑	↑	→	↓
Judicial Thinking style (High vs Low)	→	↓	→	↑	↑
Monarchic Thinking style (High vs Low)	↑	↑	→	↓	↓
Hierarchic Thinking style (High vs Low)	↓	→	→	↑	↑
Oligarchic Thinking style (High vs Low)	↑	→	→	→	→
Anarchic Thinking style (High vs Low)	→	→	→	→	→
Global Thinking style (High vs Low)	↑	→	→	↓	→
Local Thinking style (High vs Low)	↓	→	→	↑	↑
External Thinking style (High vs Low)	→	→	→	→	→
Internal Thinking style (High vs Low)	→	→	→	→	→
Liberal Thinking style (High vs Low)	↓	→	↓	↑	↑
Conservative Thinking style (High vs Low)	↑	→	↑	↓	↓
Big - Five Personality Factors					
Extraversion (High vs Low)	→	→	→	↑	→
Neuroticism (High vs Low)	→	→	→	↓	→
Openness to Experience (High vs Low)	→	→	→	→	↑
Agreeableness (High vs Low)	↓	→	→	↑	→
Conscientiousness (High vs Low)	↓	→	→	↑	→

Figure 6: Summary of results of influences on teaching styles at a glance

Legend:

Green vertical (up) arrow indicates first reference group; Red vertical (down) arrow indicates second reference group; Yellow horizontal arrow indicates no significant difference between the groups

II. No gender difference in preference for Expert, Formal Authority, Personal and Facilitator teaching styles, but male than female teachers prefer delegation style

1. Preference for Expert Teaching Style does not significantly differ between female teachers and male teachers, [t=1.89, p>.05].
2. Preference for Formal Authority Teaching Style does not significantly differ between female teachers and male teachers, [t=1.14, p>.05].
3. Preference for Personal Teaching Style does not significantly differ between female teachers and male teachers, [t=0.65, p>.05].
4. Preference for Facilitator Teaching Style does not significantly differ between female teachers and male teachers, [t=0.28, p>.05].
5. Preference for Delegating Teaching Style is significantly less for female teachers than male teachers [t=1.99, p<.05].

III. None of the teaching style preferences vary by teaching experience of secondary school teachers in Kerala

1. The main effect of teaching experience of Secondary School Teachers on Expert Teaching Style [F (2,296)=.65 *p*>.05] is not significant.
2. The main effect of teaching experience of Secondary School Teachers on Formal Authority Teaching Style [F(2,296) = .21 *p*>.05] is not significant.
3. The main effect of teaching experience of Secondary School Teachers on Personal Teaching Style [F(2,296)=.16 *p*>.05] is not significant.
4. The main effect of teaching experience of Secondary School Teachers on Facilitator Teaching Style [F (2,296) =.23 *p*>.05]is not significant.

5. The main effect of teaching experience of Secondary School Teachers on Delegator Teaching Style [F(2,296)=.31 *p*>.05]is not significant.

IV. Teacher-centered styles are found more in Mathematics and Biology teachers, and Personal styles are more in Social Science teachers; student-centered teaching styles do not vary by teaching subject.

A. The main effect of type of Teaching Subject on Expert Teaching Style is significant,[F (4,295)=2.60, *p*<.05].

Expert Teaching Style is significantly higher in mathematics teachers, in comparison to language and social science teachers in secondary schools

1. Language and Physical Science Teachers did not differ significantly on Expert Teaching Style, [*t*=0.68 *p >.05*].
2. Mathematics teachers show significantly higher preference on Expert Teaching Style than Language teachers, *[t*=2.43,p<.05].
3. Language and Biology teachers did not differ significantly on Expert Teaching Style, [*t*=0.01 *p >.05*].
4. Language and Social Science teachers did not differ significantly on Expert Teaching Style, [*t*=1.12 *p >.05*].
5. Physical Science and Mathematics teachers did not differ significantly on Expert Teaching Style, [*t*=1.59 *p >.05*].
6. Physical Science and Biology teachers did not differ significantly on Expert Teaching Style, [*t*=.47 *p >.05*].
7. Physical Science and Social Science teachers did not differ significantly on Expert Teaching Style, [*t*=1.56, *p >.05*].
8. Biology and Mathematics teachers did not differ significantly on Expert Teaching Style, [*t*=1.56, *p >.05*].
9. Biology and Social Science teachers did not differ significantly on Expert Teaching Style, [*t*=.78, *p >.05*].

10. Mathematics teachers show significantly higher preference on Expert Teaching Style than Social Science teachers [t=3.09, p<.01].

B. The main effect of type of Teaching Subject on Formal Authority Teaching Style is significant,[F (4,295)=3.17, p<.05].

Formal Authority Teaching Style is significantly less among language teachers in comparison to mathematics and biology teachers in secondary schools.

1. Language and Physical Science teachers did not differ significantly on Formal Authority Teaching Style, [t=-1.49, p >.*05*].
2. Mathematics teachers show significantly higher preference on Formal Authority Teaching Style than Language Teachers,[t=-2.81, p<.01].
3. Biology teachers show significantly higher preference on Formal Authority Teaching Style than Language teachers,[t=2.96, p<.01].
4. Language and Social Science teachers did not differ significantly on Formal Authority Teaching Style, [t=-.86, p >.*05*].
5. Physical Science and Mathematics teachers did not differ significantly on Formal Authority Teaching Style, [t=1.18, p >.*05*].
6. Physical Science and Biology teachers did not differ significantly on Formal Authority Teaching Style, [t=1.67, p >.*05*].
7. Physical Science and Social Science teachers did not differ significantly on Formal Authority Teaching Style, [t=.32, p >.*05*].
8. Biology and Mathematics teachers did not differ significantly on Formal Authority Teaching Style, [t=.72, p >.*05*].
9. Biology and Social Science teachers did not differ significantly on Formal Authority Teaching Style, [t=1.75, p >.*05*].
10. Mathematics and Social Science teachers did not differ significantly on Formal Authority Teaching Style, [t=1.30, p >.*05*].

C. The main effect of type of Teaching Subject on Personal Teaching Style is significant,[F (4,295)=3.96, p<.01].

Personal Teaching Style is the highest among social science teachers (compared to language, mathematics, physical science and biology teachers); it is the least in mathematics teachers (compared to physical science, language and social science teachers) in secondary schools.

1. Language and Physical Science teachers did not differ significantly on Personal Teaching Style, [t=-.10, p >.*05*].
2. Language Teachers show significantly higher preference on Personal Teaching Style than Mathematics teachers ,[t=2.20,p<.05].
3. Biology teachers and Language teachers did not differ significantly on Personal Teaching Style, [t=.92, p >.*05*].
4. Social Science teachers show significantly higher preference on Personal Teaching Style than Language teachers, *[*t=2.49,p<.05].
5. Physical Science teachers show significantly higher preference on Personal Teaching Style than Mathematics teachers, [t=2.04, p<.05].
6. Physical Science and Biology teachers did not differ significantly on Personal Teaching Style, [t=.91, p >.*05*].
7. Social Science teachers show significantly higher preference on Personal Teaching Style than Physical Science teachers, [t=-2.07, p<.05].
8. Biology and Mathematics teachers did not differ significantly on Personal Teaching Style, [t= 0.90, p >.*05*].
9. Social Science teachers show significantly higher preference on Personal Teaching Style than Biology teachers, *[*t=-2.74, p<.01].
10. Social Science teachers show significantly higher preference on Personal Teaching Style than Mathematics teachers, [t=-4.17, p<.01].

D. The main effect of type of Teaching Subject on Facilitating Teaching Style is not significant, [F(4,295)=1.16, p>.05].

E. The main effect of type of Teaching Subject on Delegating Teaching Style is not significant, [F(4,295)=1.41, *p*>.05].

V. Teachers with post-graduation prefer Expert Style more and Facilitator Style less than graduate teachers. No difference in Formal Authority, Personal and Delegator Teaching Styles by educational qualification.

1. The preference for Expert Teaching Style is significantly less for post graduate teachers than graduate teachers [t=3.02, p<.01].
2. The preference for Formal Authority Teaching Style does not significantly differ between post graduate teachers and graduate teachers, [t=0.67, p>.05].
3. The preference for Personal Teaching Style does not significantly differ between post graduate teachers and graduate teachers, [t=0.13, p>.05].
4. The preference for Facilitating Teaching Style is significantly more for post graduate teachers than graduate teachers, [t=2.21, p<.05].
5. The preference for Delegating Teaching Style does not significantly differ between post graduate teachers and graduate teachers, [t=1.91, p>.05].

VI. Teacher-centered Teaching Styles are more affected by the Type of School Management, with Government school teachers preferring such types less than others.

F. The main effect of Type of School Management on Expert Teaching Style is significant, [F (2,297)=9.26, p<.01].

Expert Teaching Styles is preferred more by teachers in Aided and Unaided schools than those in Government schools.

1. Aided school teachers show significantly higher preference on Expert Teaching Style than Government school teachers, [*t*= -4.25, *p*< .01.]

2. Unaided school teachers show significantly higher preference for Expert Teaching Style than Government school teachers,[*t*= -2.07, *p*< .05.]
3. Aided and Unaided school teachers did not differ significantly on Expert Teaching Style,[*t*= 0.21, *p >.05]*.

G. The main effect of Type of School Management on Formal Authority Teaching Style is significant, [F (2,297)=6.58, p<.01].

Formal Authority Teaching Style is preferred more by teachers in Aided schools than those in Government and Unaided schools.

1. Aided school teachers show significantly higher preference of Formal Authority Teaching Style than Government school teachers, [*t*= -3.17,*p*< .01].
2. Aided school teachers show significantly higher preference for Formal Authority Teaching Style than Unaided school teachers, [*t*= 3.38, *p*< .01].
3. Government and Unaided school teachers did not differ significantly on Formal Authority Teaching Style,[*t*= -0.71, *p >.05]*.

H. The main effect of Type of School Management on Personal Teaching Style is significant, [F (2,297)=3.86,p<.05].

Personal Teaching Style is preferred more by teachers in Government schools than those in Aided schools.

1. Government school teachers show significantly higher preference on Personal Teaching Style than Aided school teachers, [*t*= 2.77,*p*< .01].
2. Government and Unaided school teachers did not differ significantly on Personal Teaching Style,[*t*= -0.39, *p >.05*].
3. Aided and Unaided school teachers did not differ significantly on Personal Teaching Style, [*t*= -1.24, *p >.05*].

I. The main effect of Type of School Management on Facilitating Teaching Style is not significant, [F (2,297)=1.67, p >.05].

J. The main effect of Type of School Management on Delegator Teaching Style is significant, [F (2,297)=6.83, p<.01].

Delegator Teaching Style is preferred more by teachers in Aided schools than those in Government schools.

1. Aided school teachers show significantly higher preference on Delegator Teaching Style than Government school teachers ,[*t*= -3.38,*p*< .01].
2. Government and Unaided school teachers did not differ significantly on Delegator Teaching Style, *[t*= -1.26, *p >.05*].
3. Aided and Unaided school teachers did not differ significantly on Delegator Teaching Style, [*t*= 0.75, *p >.05*].

VII. Visual Letter learning style favours teacher-centered teaching styles, and disfavors student-centered teaching styles; Kinesthetic learning style disfavours teacher-centered styles; Visual learning favours Formal Authority style.

Visual learning style favours Formal Authority Teaching Style.

1. The preference for Expert Style teaching does not significantly differ by Visual Learning,[t=0.73, p>.05].
2. The preference for Formal Authority Style teaching is significantly more for teachers who prefer Visual Learning [t=2.41, p<.05].
3. The preference for Personal Style teaching does not significantly differ by Visual Learning, [t=1.27, p>.05].
4. The preference for Facilitator Style teaching does not significantly differ by Visual Learning, [t=0.80, p>.05].
5. The preference for Delegator Style teaching does not significantly differ by Visual Learning, [t=1.27, p>.05].

Preference for Visual Letter Learning is high for Expert and Formal Authority Teaching Styles and low for Facilitator and Delegator Teaching Styles.

1. The preference for Expert Teaching Style is significantly more for teachers who prefer and do not prefer Visual Letter Learning, [t=2.83, p<.01].
2. The preference for Formal Authority Teaching Style is significantly more for teachers who prefer and do not prefer Visual Letter Learning, [t=2.51, p<.05].
3. The preference for Personal Teaching Style does not significantly differ between teachers who prefer and do not prefer Visual Letter Learning, [t=0.82, p>.05].
4. The preference for Facilitating Teaching Style is significantly less for teachers who prefer and do not prefer Visual Letter Learning, [t=3.89, p<.01].
5. The preference for Delegating Teaching Style is significantly less for teachers who prefer and do not prefer Visual Letter Learning, [t=2.67, p<.01].
6. The preference for Expert Teaching Style does not significantly differ between teachers who prefer and do not prefer Auditory Learning,[t=0.67, p>.05].
7. The preference for Formal Authority Teaching Style does not significantly differ between teachers who prefer and do not prefer Auditory Learning, [t=1.47, p>.05].
8. The preference for Personal Teaching Style does not significantly differ between teachers who prefer and do not prefer Auditory Learning,[t=0.81, p>.05].

9. The preference for Facilitating Teaching Style does not significantly differ between teachers who prefer and do not prefer Auditory Learning,[t=1.72, p>.05].
10. The preference for Delegating Teaching Style does not significantly differ between teachers who prefer and do not prefer Auditory Learning,[t=1.32, p>.05].

Preference for Kinesthetic Learning is low on Expert and Formal Authority teaching styles.

1. The preference for Expert Teaching Style is significantly less for teachers who prefer Kinesthetic Learning, than those who do not prefer Kinesthetic Learning, [t=2.50, p<.05].
2. The preference for Formal Authority Teaching Style is significantly less for teachers who prefer Kinesthetic Learning, than those who do not prefer Kinesthetic Learning, [t=2.23, p<.05].
3. The preference for Personal Teaching Style does not significantly differ between teachers who prefer and do not prefer Kinesthetic Learning, [t=1.46, p>.05].
4. The preference for Facilitating Teaching Style does not significantly differ between teachers who prefer and do not prefer Kinesthetic Learning, [t=1.76, p>.05].
5. The preference for Delegating Teaching Style does not significantly differ between teachers who prefer and do not prefer Kinesthetic Learning, [t=1.91, p>.05].

VIII. Functions of thinking influence teaching styles more than other dimensions of thinking styles; Executive thinking favours teacher-centeredness; Legislative and Judicial thinking favour student-centered teaching styles

Legislative thinking favours Delegating Teaching Style and disfavours Formal Authority.

1. The preference for Expert Teaching Style does not significantly differ between teachers who prefer and do not prefer Legislative thinking, [t=0.86, p>.05].
2. The preference for Formal Authority Teaching Style is significantly less for teachers who prefer Legislative thinking, than those who do not prefer Legislative thinking, [t=2.08, p<.05].
3. The preference for Personal Teaching Style does not significantly differ between teachers who prefer and do not prefer Legislative thinking, [t=1.32, p>.05].
4. The preference for Facilitating Teaching Style does not significantly differ between teachers who prefer and do not prefer Legislative thinking, [t=0.26, p>.05].
5. The preference for Delegating Teaching Style is significantly more for teachers who prefer Legislative thinking, than those who do not prefer Legislative thinking, [t=3.86, p<.01].

Executive thinking style favours Formal Authority and Personal Teaching Style and disfavours Delegator Teaching Style.

1. The preference for Expert Teaching Style does not significantly differ between teachers who prefer and who do not prefer Executive thinking,[t=0.82, p>.05].
2. The preference for Formal Authority Teaching Style is significantly more for teachers who prefer Executive thinking, than those who do not prefer Executive thinking, [t=3.58, p<.01].
3. The preference for Personal Teaching Style is significantly more for teachers who prefer Executive thinking, than those who do not prefer Executive thinking, [t=2.35, p<.05].

4. The preference for Facilitator Teaching Style does not significantly differ between teachers who prefer and do not prefer Executive thinking, [t=1.01, p>.05].
5. The preference for Delegating Teaching Style is significantly less for teachers who prefer Executive thinking, than those who do not prefer Executive thinking, [t=5.44, p<.01].

Judicial thinking style favours Facilitator and Delegator styles; it is disfavourable to Formal Authority Teaching Style.

1. The preference for Expert Teaching Style does not significantly differ between teachers who prefer and do not prefer Judicial thinking, [t=0.21, p>.05].
2. The preference for Formal Authority Teaching Style is significantly less for teachers who prefer Judicial thinking, than those who do not prefer Judicial thinking, [t=2.28, p<.05].
3. The preference for Personal Teaching Style does not significantly differ between teachers who prefer and do not prefer Judicial thinking, [t=0.82, p>.05].
4. The preference for Facilitating Teaching Style is significantly more for teachers who prefer Judicial thinking, than those who do not prefer Judicial thinking, [t=2.34, p<.05].
5. The preference for Delegating Teaching Style is significantly more for teachers who prefer Judicial thinking, than those who do not prefer Judicial thinking, [t=2.84, p<.01].

IX. Monarchic thinking favours teacher-centered styles and disfavours student-centered styles and opposite is true of Hierarchic thinking styles.

Monarchic thinking styles favours Expert and Formal Authority Teaching Styles; it is disfavourable for Facilitator and Delegator styles.

1. The preference for Expert Teaching Style is significantly more for teachers who prefer Monarchic thinking, than those who do not prefer Monarchic thinking, [t=1.98, p<.05].
2. The preference for Formal Authority Teaching Style is significantly more for teachers who prefer Monarchic thinking, than those who do not prefer Monarchic thinking, [t=2.36, p<.05].
3. The preference for Personal Teaching Style does not significantly differ between teachers who prefer and do not prefer Monarchic thinking, [t=0.58, p>.05].
4. The preference for Facilitating Teaching Style is significantly less for teachers who prefer Monarchic thinking, than those who do not prefer Monarchic thinking, [t=3.08, p<.01].
5. The preference for Delegating Teaching Style does not significantly differ between teachers who prefer and do not prefer Monarchic thinking, [t=1.12, p>.05].

Hierarchic thinking styles favours Facilitator and Delegator Teaching Styles; it is disfavourable for Expert Teaching Style.

1. The preference for Expert Teaching Style is significantly less for teachers who prefer Hierarchic thinking, than those who do not prefer Hierarchic thinking, [t=3.08, p<.01].
2. The preference for Formal Authority Teaching Style does not significantly differ between teachers who prefer and do not prefer Hierarchic thinking, [t=0.66, p>.05].
3. The preference for Personal Teaching Style does not significantly differ between teachers who prefer and do not prefer Hierarchic thinking, [t=1.67, p>.05].

4. The preference for Facilitating Teaching Style is significantly more for teachers who prefer Hierarchic thinking, than those who do not prefer Hierarchic thinking, [t=3.36, p<.01].
5. The preference for Delegating Teaching Style is significantly more for teachers who prefer Hierarchic thinking, than those who do not prefer Hierarchic thinking, [t=2.42, p<.05].

X. Oligarchic thinking style favours Expert Teaching Style; Teaching Styles are independent of Anarchic thinking style.

Oligarchic thinking styles favours Expert Teaching Style.

1. The preference for Expert Teaching Style is significantly more for teachers who prefer Oligarchic thinking, than those who do not prefer Oligarchic thinking, [t=2.77, p<.01].
2. The preference for Formal Authority Teaching Style does not significantly differ between teachers who prefer Oligarchic thinking and those who do not prefer Oligarchic thinking, [t=1.79, p>.05].
3. The preference for Personal Teaching Style does not significantly differ between teachers who prefer and do not prefer Oligarchic thinking, [t=0.76, p>.05].
4. The preference for Facilitating Teaching Style does not significantly differ between teachers who prefer and do not prefer Oligarchic thinking,[t=1.61, p>.05].
5. The preference for Delegating Teaching Style does not significantly differ between teachers who prefer and do not prefer Oligarchic thinking, [t=0.33, p>.05].

None of the teaching style is influenced by Anarchic thinking style

1. The preference for Expert Teaching Style does not significantly differ between teachers who prefer and do not prefer Anarchic thinking, [t=0.22, p>.05].

2. The preference for Formal Authority Teaching Style does not significantly differ between teachers who prefer and do not prefer Anarchic thinking, [t=0.52, p>.05].
3. The preference for Personal Teaching Style does not significantly differ between teachers who prefer and do not prefer Anarchic thinking, [t=1.56, p>.05].
4. The preference for Facilitating Teaching Style does not significantly differ between teachers who prefer and do not prefer Anarchic thinking, [t=0.32, p>.05].
5. The preference for Delegating Teaching Style does not significantly differ between teachers who prefer and do not prefer Anarchic thinking, [t=0.19, p>.05].

XI. Global thinking favours Expert style and disfavours Facilitating style of teaching; the opposite is true for Local thinking style.

1. The preference for Expert Teaching Style is significantly more for teachers who prefer Global thinking, than those who do not prefer Global thinking, [t=3.12, p<.01].
2. The preference for Formal Authority Teaching Style does not significantly differ between teachers who prefer and do not prefer Global thinking, [t=0.84, p>.05].
3. The preference for Personal Teaching Style does not significantly differ between teachers who prefer and do not prefer Global thinking, [t=0.98, p>.05].
4. The preference for Facilitating Teaching Style is significantly less for teachers who prefer Global thinking, than those who do not prefer Global thinking, [t=3.61, p<.01].
5. The preference for Delegating Teaching Style does not significantly differ between teachers who prefer and do not prefer Global thinking, [t=1.62, p>.05].

6. The preference for Expert Teaching Style is significantly less for teachers who prefer Local thinking, than those who do not prefer Local thinking, [t=3.41, p<.01].
7. The preference for Formal Authority Teaching Style does not significantly differ between teachers who prefer and do not prefer Local thinking, [t=1.72, p>.05].
8. The preference for Personal Teaching Style does not significantly differ between teachers who prefer and do not prefer Local thinking, [t=0.26, p>.05].
9. The preference for Facilitating Teaching Style is significantly more for teachers who prefer Local thinking than those who do not prefer Local thinking, [t=3.99, p<.01].
10. The preference for Delegating Teaching Style is significantly more for teachers who prefer Local thinking, than those who do not prefer Local thinking, [t=1.98, p<.05].

XII. None of the teaching styles differs by scope of thinking styles of teachers.

1. The preference for Expert Teaching Style does not significantly differ between teachers who prefer and do not prefer External thinking,[t=0.09, p>.05].
2. The preference for Formal Authority Teaching Style does not significantly differ between teachers who prefer and do not prefer External thinking, [t=0.68, p>.05].
3. The preference for Personal Teaching Style does not significantly differ between teachers who prefer and do not prefer External thinking, [t=1.33, p>.05].
4. The preference for Facilitating Teaching Style does not significantly differ between teachers who prefer and do not prefer External thinking,[t=1.25, p>.05].

5. The preference for Delegating Teaching Style does not significantly differ between teachers who prefer and do not prefer External thinking,[t=0.62, p>.05].
6. The preference for Expert Teaching Style does not significantly differ between teachers who prefer and do not prefer Internal thinking, [t=0.10, p>.05].
7. The preference for Formal Authority Teaching Style does not significantly differ between teachers who prefer and do not prefer Internal thinking, [t=0.77, p>.05].
8. The preference for Personal Teaching Style does not significantly differ between teachers who prefer and do not prefer Internal thinking, [t=1.17, p>.05].
9. The preference for Facilitating Teaching Style does not significantly differ between teachers who prefer and do not prefer Internal thinking, [t=1.11, p>.05].
10. The preference for Delegating Teaching Style does not significantly differ between teachers who prefer and do not prefer Internal thinking, [t=0.72, p>.05].

XIII. Liberal thinking style favours student-centered teaching styles and disfavours Expert and Personal teaching styles; the opposite is true for conservative thinking style.

1. The preference for Expert Teaching Style is significantly less for teachers who prefer Liberal thinking, than those who do not prefer Liberal thinking, [t=2.28, p<.05].
2. The preference for Formal Authority Teaching Style does not significantly differ between teachers who prefer and do not prefer Liberal thinking, [t=1.32, p>.05].
3. The preference for Personal Teaching Style is significantly less for teachers who prefer and do not prefer Liberal thinking, [t=2.84, p<.01].

4. The preference for Facilitating Teaching Style is significantly more for teachers who prefer Liberal thinking, than those who do not prefer Liberal thinking, [t=4.21, p<.01].
5. The preference for Delegating Teaching Style is significantly more for teachers who prefer Liberal thinking, than those who do not prefer Liberal thinking, [t=2.29, p<.05].
6. The preference for Expert Teaching Style is significantly more for teachers who prefer Conservative thinking, than those who do not prefer Conservative thinking, [t=2.93, p<.01].
7. The preference for Formal Authority Teaching Style does not significantly differ between teachers who prefer and do not prefer Conservative thinking, [t=1.63, p>.05].
8. The preference for Personal Teaching Style is significantly more for teachers who prefer Conservative thinking, than those who do not prefer Conservative thinking, [t=2.31, p<.05].
9. The preference for Facilitating Teaching Style is significantly less for teachers who prefer Conservative thinking, than those who do not prefer Conservative thinking, [t=4.50, p<.01].
10. The preference for Delegating Teaching Style is significantly less for teachers who prefer Conservative thinking, than those who do not prefer Conservative thinking, [t=2.67, p<.01].

XIV. Extraversion, Agreeableness and Conscientiousness favour Facilitator teaching style whereas neuroticism disfavors it; Openness to Experiences favours Delegator teaching style; Agreeableness and Conscientiousness disfavor Expert teaching style.

1. The preference for Expert Teaching Style does not significantly differ between teachers who prefer and do not prefer Extraversion, [t=1.61, p>.05].

2. The preference for Formal Authority Teaching Style does not significantly differ between teachers with high Extraversion and those with low Extraversion, [t=0.67, p>.05].
3. The preference for Personal Teaching Style does not significantly differ between teachers with high Extraversion and those with low Extraversion, [t=0.18, p>.05].
4. The preference for Facilitating Teaching Style is significantly more for teachers with high Extraversion, than those with low Extraversion, [t=2.57, p<.05].
5. The preference for Delegating Teaching Style does not significantly differ between teachers with high Extraversion and those with low Extraversion, [t=1.61, p>.05].
6. The preference for Expert Teaching Style does not significantly differ between teachers with high score in Neuroticism and those without high score in Neuroticism, [t=1.38, p>.05].
7. The preference for Formal Authority Teaching Style does not significantly differ between teachers with high score in Neuroticism and those without high score in Neuroticism, ([t=1.80, p>.05].
8. The preference for Personal Teaching Style does not significantly differ between teachers with high score in Neuroticism and those without high score in Neuroticism, [t=1.55, p>.05].
9. The preference for Facilitating Teaching Style is significantly less for teachers who have high score in Neuroticism, than those who do not have high score in Neuroticism, [t=3.09, p<.01].
10. The preference for Delegating Teaching Style does not significantly differ between teachers who have high score in Neuroticism and those who do not have high score in Neuroticism, [t=1.93, p>.05].

11. The preference for Expert Teaching Style does not significantly differ between teachers with high score in Openness to Experience and those without high score in Openness to Experience, [t=1.49, p>.05].
12. The preference for Formal Authority Teaching Style does not significantly differ between teachers with high score in Openness to Experience and those without high score in Openness to Experience, [t=1.66, p>.05].
13. The preference for Personal Teaching Style does not significantly differ between teachers with high score in Openness to Experience and those without high score in Openness to Experience, [t=0.76, p>.05].
14. The preference for Facilitating Teaching Style does not significantly differ between teachers with high score in Openness to Experience and those without high score in Openness to Experience, [t=0.88, p>.05].
15. The preference for Delegating Teaching Style is significantly more for teachers with high score in Openness to Experience, than those without high score in Openness to Experience, [t=3.12, p<.01].
16. The preference for Expert Teaching Style is significantly less for teachers who have high score in Agreeableness, than those who do not have high score in Agreeableness, [t=3.24, p<.01].
17. The preference for Formal Authority Teaching Style does not significantly differ between teachers with and without high score in Agreeableness, [t=1.36, p>.05].
18. The preference for Personal Teaching Style does not significantly differ between teachers with and without high score in Agreeableness, [t=0.44, p>.05].
19. The preference for Facilitating Teaching Style is significantly more for teachers with high score in Agreeableness, than those without high score in Agreeableness, [t=3.28, p<.01].

20. The preference for Delegating Teaching Style does not significantly differ between teachers with and without high score in Agreeableness, [t=1.42, p>.05].
21. The preference for Expert Teaching Style is significantly less for teachers with high score in Conscientiousness, than those without high score in Conscientiousness, [t=2.27, p<.05].
22. The preference for Formal Authority Teaching Style does not significantly differ between teachers with and without high score in Conscientiousness, [t=1.16, p>.05].
23. The preference for Personal Teaching Style does not significantly differ between teachers with and without high score in Conscientiousness, [t=0.55, p>.05].
24. The preference for Facilitating Teaching Style is significantly more for teachers with high score in Conscientiousness, than those without high score in Conscientiousness, [t=3.15, p<.01].
25. The preference for Delegating Teaching Style does not significantly differ between teachers with and without high score in Conscientiousness, [t=1.89, p>.05].

Conclusion

From the analysis of data, it can be concluded that the most preferred teaching style of secondary school teachers is facilitating style and expert style is the least preferred style. Therefore, the secondary school teachers favour student-centered teaching styles than teacher-centered teaching styles. Facilitative teaching styles give opportunity to students for selection from the alternatives and foster participant and collaborative learning.

Gender difference show that male teachers prefer delegating teaching styles compared to female teachers. No other significant difference has been observed. In the case of educational qualification of secondary school teachers

graduate teachers prefer expert teaching style and post graduate teachers prefer facilitating style.

The type of school management affects significantly on Expert, Formal Authority, Personal and Delegator styles of teaching. There is no significant effect observed in Facilitating style in the case of type of school management. Comparing the mean difference between Government school teachers and Aided school teachers, the result show that the Aided school teachers prefer Expert, Formal Authority and Delegator teaching styles and government school teachers prefer Personal teaching style. Comparing the mean difference between Government school teachers and Unaided school teachers, the result show that the Unaided school teachers prefer Expert teaching style. Comparing the mean difference between Aided school teachers and Unaided school teachers, the result show that the Aided school teachers prefer Formal Authority teaching style.

The teaching subject effect significantly on Expert, Formal Authority and Personal teaching styles. The teaching subject not effect significantly on Facilitating and Delegating teaching styles.

Comparison of the mean difference between language teachers and mathematics teachers, the result shows that the mathematics teachers prefer Expert and Formal Authority styles of teaching, and the language teachers prefer Personal style.

Comparison of the mean difference between language teachers and Biology teachers, the result shows that the Biology teachers prefer Formal Authority teaching. Comparison of the mean difference between language teachers and Social Science teachers, the result shows that the Social Science teachers prefer Personal teaching. Comparison of the mean difference between Physical Science teachers and Mathematics teachers, the result

shows that the Mathematics teachers prefer Personal teaching. Comparison of the mean difference between Physical Science teachers and Social Science teachers, the result shows that the Social Science teachers prefer Personal teaching. Comparison of the mean difference between Biology teachers and Social Science teachers, the result shows that the Social Science teachers prefer Personal teaching. Comparison of the mean difference between Mathematics and Social Science teachers, the result shows that the Social Science teachers prefer Personal teaching and Mathematics teachers prefer Expert style.

The teaching experience not effect significantly on Expert, Formal Authority, Personal, Facilitator and Delegator styles of teaching. It shows that teaching style is relatively stable and the modification of style is not easily possible. The teacher training institutions should give due emphasis to the awareness and flexible use of styles as a part of training which enable teacher trainees to cater diversity of learning styles of students in the classroom.

One of the major objectives of the study is to find out the influence of learning styles (Visual, Visual Letter, Auditory and Kinesthetic) on teaching styles of secondary school teachers of Kerala. The results show that teachers with Visual Learning preference tends to adopt Formal Authority style of teaching. Expert, Personal, Facilitating and Delegating styles of teaching among teachers are independent of their preference for Visual Learning.

The preference for Visual Letter Learning style of teachers influences their teaching styles. Teachers with Visual Letter Learning preference tends to adopt Expert and Formal Authority styles of teaching. Teachers short of Visual Letter Learning preference tends to adopt Facilitating and Delegating styles of teaching. Personal style teaching among teachers is independent of their preference for Visual Letter Learning.

Five styles of teaching (Expert, Formal Authority, Personal, Facilitator and Delegator) do not significantly differ between teachers who prefer Auditory Learning and those who do not prefer Auditory Learning. Teaching styles of secondary school teachers is independent of their preference for auditory learning.

Teachers with Kinesthetic Learning preference tends to adopt Expert and Formal Authority styles of teaching. Personal, Facilitating Delegating styles of teaching among teachers is independent of their preference for Kinesthetic Learning. The preference for Legislative style of teachers influences their teaching styles. Teachers with Legislative Thinking preference tends to adopt Delegating style of teaching. Teachers short of Legislative Thinking preference tends to adopt Formal Authority Teaching Style. Expert, Personal and Facilitating teaching styles among teachers is independent of their preference for Legislative Thinking.

The preference of Executive Thinking of teachers influences their teaching styles. Teachers with Executive Thinking preference tends to adopt Formal Authority and Personal styles of teaching. Teachers short of Executive Thinking preference tends to adopt Delegating style of teaching. Expert style teaching among teachers is independent of their preference for Executive Thinking.

The preference for Judicial Thinking style of teachers influences their teaching styles. Teachers with Judicial Thinking preference tends to adopt Facilitating and Delegating styles of teaching. Teachers short of Executive Thinking preference tends to adopt Formal Authority style of teaching. Expert and Personal styles of teaching among teachers is independent of their preference for Judicial Thinking.

The preference for Monarchic Thinking style of teachers influences their teaching styles. Teachers with Monarchic Thinking preference tends to adopt Expert and Formal Authority styles of teaching. Teachers short of Monarchic Thinking preference tends to adopt Facilitating style of teaching. Personal and Delegator styles of teaching among teachers is independent of their preference for Monarchic Thinking.

The preference for Hierarchic Thinking style of teachers influences their teaching styles. Teachers with Hierarchic Thinking preference tends to adopt Facilitating and Delegating styles of teaching. Teachers short of Hierarchic Thinking preference tends to adopt Expert style of teaching. Personal and Formal Authority styles of teaching among teachers is independent of their preference for Hierarchic Thinking.

The Teachers with Oligarchic Thinking preference tends to adopt Expert style of teaching. Formal Authority, Personal, Facilitating and Delegating styles of teaching of secondary school teachers is independent of their preference for Oligarchic Thinking.

Teaching Styles of secondary school teachers is independent of their preference for Anarchic Thinking. The teachers with Global Thinking preference tends to adopt Expert style of teaching. Teachers short of Global Thinking preference tends to adopt Facilitating style of teaching. Formal Authority, Personal, Personal and Delegating styles of teaching of secondary school teachers is independent of their preference for Global Thinking.

The preference for Local Thinking of teachers influences their Teaching Styles. Teachers with Local Thinking preference tends to adopt Facilitating and Delegating styles of teaching. Teachers short of Local Thinking preference tends to adopt Expert style teaching. Formal Authority and Personal style teaching among teachers is independent of their preference for Local Thinking.

The teaching styles of secondary school teachers are independent of their preference for External Thinking and Internal Thinking. The preference for Liberal thinking of teachers influences their Teaching Styles. Teachers with Liberal thinking preference tends to adopt Facilitating and Delegating styles of teaching. Teachers short of Liberal thinking preference tends to adopt Expert and Personal styles of teaching. Formal Authority style teaching among teachers is independent of their preference for Liberal thinking.

The preference for Conservative Thinking of teachers influences their Teaching Styles. Teachers with Conservative thinking preference tend to adopt Expert and Personal styles of teaching. Teachers short of Liberal thinking preference tends to adopt Facilitating and Delegating styles of teaching. Formal Authority style teaching among teachers is independent of their preference for Conservative thinking.

Teachers with high score in Extraversion trait tends to adopt Facilitating styles of teaching. Expert, Formal Authority, Personal and Delegating style teaching among teachers is independent of their Extraversion trait. The preference for Facilitating Teaching Style is significantly less for teachers who have high score in Neuroticism and the preference for Expert, Formal Authority, Personal and Delegating Styles of teaching does not significantly differ between teachers who have high score in Neuroticism and do not have high score in Neuroticism.

The preference for Facilitating Teaching Style is significantly more for teachers who have high score in Agreeableness and, the preference for Expert style is significantly less for teachers who have high score in Agreeableness. Formal Authority, Personal and Delegator Styles of teaching do not significantly differ between teachers who have high score in and do not have high score in Agreeableness.

The preference for Facilitating Teaching Style is significantly more for teachers who have high score in Conscientiousness. The preference for Expert

Teaching Style is significantly less for teachers who have high score in Conscientiousness. Moreover, the preference for Formal Authority, Personal and Delegator Styles of teaching does not significantly differ between teachers who have high score in and do not have high score in Conscientiousness.

The study can be summarized through the influence of learning styles on teaching styles indicate that Visual letter learning has strong influence on teaching style. Formal authority teaching is influenced by learning style more. In brief, teacher centered teaching styles are influenced by learning styles.

Concerning with thinking style and teaching styles, Type III thinking styles (Internal, External, Anarchic and Oligarchic) have weak influence on teaching styles. The functions of thinking style have influence on Formal Authority teaching style and thinking style has meager influence on Personal style. Among Type I thinking styles, generally judicial, monarchic and liberal styles tends to be favour to teaching style. However global style is negatively influences teaching style. Besides, Facilitating and Delegating styles are positively influenced by creativity generating Type I styles. Thus it can be concluded that Type I thinking styles influence student centered teaching styles, except global style.

The result shows that Facilitating style is influenced by personality factors more and personality factors no influence on Formal Authority and Personal styles. Analysis of result concerning with school variables, shows that classificatory variables mainly influences teacher centered styles. Teachers of Humanities subjects prefer Personal style and mathematics teachers prefer teacher centered teaching styles especially Expert style. In the present study teaching experience did not influence teaching styles.

Educational Implications

Effective teaching and classroom practices must derive from an understanding of the way individuals learn. Facilitation of learning by facilitative teaching is related with constructivist paradigm of learning. Participant and collaborative learning are important styles of learning supports Facilitative teaching. Flexibility in using styles reduces classroom style conflict created by the mismatch of learners' learning styles and instructors' teaching styles.

To reduce teacher-student style conflict is not easy, but also not impossible when teachers are aware of their learner's needs, wants, potentials and learning style preferences in order to use appropriate pedagogical methods to meet them. Teachers should consider classroom style differences as they plan how to teach, and make a conscious effort to include various learning styles in their teaching manuals.

Teachers should help students discover their own learning preferences and provide constructive feedback about the advantages and disadvantages of various styles. Opportunities for students to manage with different ways of learning also should be encouraged. A variety of activities that focus on different learning styles should be designed by teacher and get all the students participate in all the activities.

Students are more successful when using their style strengths, hence, diverse teaching styles are essential (Guild, 1994). Dunn and Dunn (1978) indicated that students learn faster with greater ease when teachers gear instruction to students learning styles. Accommodation of student learning styles can result in improved attitudes towards learning which facilitates the teachers' pedagogical style easily.

For secondary school teachers, it is very important to have aware of their teaching styles. Different styles are suitable and effective for various tasks (Sternberg, 1997).It is impossible for all secondary school teachers to do

the classroom activities in the same manner. Therefore, the diversity of teaching styles should be a general consideration for them. For the development of individuality in classroom teaching, only a diversity of teaching styles can make individuals being unique entities.

Knowing one's preferred teaching style may lead to increased self-awareness that promotes flexibility in teaching (Dunn & Dunn, 1977; Felder, 1993; Fischer & Fischer, 1979). Moreover, knowing one's teaching style could help educators better realize the teaching process, make choices among alternative teaching methods, and identify components of their teaching style.

The study suggests that the educationalists might incorporate teaching styles along with other style constructs concerned with classroom interaction into the curriculum in order to model its use to pre service teachers. Teachers who aspire to be more student centered must be aware of the variety of learning experiences that students most worth, and direct them as a link between instructional objectives and students' learning style preferences.

Teachers need to keep away from methodological dogmatism and consider for suitable alternatives which blend the best styles from their own awareness and accommodate learner needs, to minimize the perceived mismatch between teacher and learner. The best teachers do know not only on material, but also know a lot about the process.

This study suggested the major implications for curriculum framers that they should recognize individual difference existed in both learning and teaching. Each learner is unique in nature. Different learners follow different learning styles whereas different teachers follow different teaching styles. Faculty development programs should focus on planning by considering the preferences of teachers rather than adjust with usual procedure. If so, the teachers can follow different styles as per classroom situation.

The present study suggested that teachers follow Expert style, Formal Authority style, Personal style, Facilitator style and Delegator style at

secondary school level. Each of these teaching styles is closely associated with individuality of the teacher and therefore, it is the responsibility of curriculum framers to know different teaching styles and develop the curriculum material on the basis of prescribed teaching styles followed by secondary school teachers.

The present study suggested that the heads of the institutions should give individual attention and must be aware of the style preferences of teachers. Proper diagnosing of preferences in using abilities of teachers helps to utilize them properly in accordance with varying demands of schools.

Suggestions for Further Research

1. The Teaching Style Inventory is to be validated on different samples and different cultural contexts. Also, the influence of style constructs other than learning style, thinking style and personality styles, on teaching styles is to be studied.
2. Teaching is a process which facilitates learning. The study considered sensory learning styles (VARK) for quantification and, recommends that the influence of other learning style types on teaching style can be studied so as to strengthen diverse classroom needs of learners as well as teachers.
3. The occupational stress and teaching style of school teachers can be studied. The responsibility of the teacher includes planning, teaching, evaluation and institutional activities etc.So the professional commitment engage with different situations is to be studied.
4. Match or mismatch of teaching style of instructors with learning style of student scan be studied. It is to identify how to avoid style conflict in the classroom, to check matching enhance academic achievement of learners and how to handle with such a classroom situation. To avoid style conflicts and to develop style flexibility separate experimental designs need be developed.

5. Teaching style is reflected with educational philosophy of the teachers. To identify the relationship between educational philosophies and teaching styles and how educational philosophy effects on various phases of classroom teaching is to be studied. There is a scope for conducting research focused on the relationship between teaching styles and perspectives of teaching.
6. The teaching and learning styles of special education teachers and teacher candidates is to be studied.
7. The present study is confined to know the teaching style of secondary school teachers. The same study can be duplicated to identify the teaching style of college/ university teachers, or teachers working in professional colleges.

REFERENCES

Adey, P., Fairbrother, R., & William, D. with Johnson, B. and Jones, C.(1999) Learning Styles & Strategies: A review of research. *London: King's College*.

Aitkin, M., & Zuzovsky, R. (1994). Multilevel interaction models and their use in the analysis of large-scale school effectiveness studies. *School effectiveness and school improvement*, *5*(1), 45- 73.

Albuquerque, I., de Lima, M. P., Matos, M., & Figueiredo, C. (2013). The interplay among levels of personality: The mediator effect of personal projects between the Big Five and subjective well-being. *Journal of Happiness Studies*, *14*(1), 235-250.

Alipour, A., Akhondy, N., & Aerab-sheybani, K. (2012). Relationship between handedness and thinking styles in female and male students. *Procedia-Social and Behavioral Sciences*, *32*, 22-28.

Allinson, C. W., & Hayes, J. (1996). The cognitive style index: A measure of intuition-analysis for organizational research. *Journal of Management studies*, *33*(1), pp. 119-135.

Allport, G. W. (1961). Pattern and Growth in Personality. New York: Holt, Rinehart, and Winston.

Allport, G. W., & Odbert, H. S. (1936). Trait-names: A psycho-lexical study. *Psychological monographs*, *47*(1), i.

Amira, R., & Jelas, Z. M. (2010). Teaching and Learning Styles in Higher Education Institutions: Do They Match?. *Procedia-Social and Behavioral Sciences*, *7*, 680- 684.

Amira, R., & Jelas, Z. M. (2010). Teaching and Learning Styles in Higher Education Institutions: Do They Match?. *Procedia-Social and Behavioral Sciences*, *7*, 680- 684.

Anderson, R. C. (1959). Learning in discussions: A resume of the authoritarian-democratic studies. *Harvard Educational Review*.

Apter, M. J., Mallows, R., & Williams, S. (1998). The development of the motivational style profile. *Personality and Individual Differences*, *24*(1), pp. 7-18.

Ausubel, D. P., Novak, J. D., & Hanesian, H. (1968). Educational psychology: A cognitive view.

Axeload , J. (1970) Teaching Style in the Humanities. In Morris,W.H. (Ed).

Babu, H, & Gafoor, A. (2013) Preferred philosophical orientations of B.Ed students, *GCTE Journal of Research and Extension in Education*, 8 (2),11-17.

Bahar, M. (2009). The relationships between pupils' learning styles and their performance in mini science projects. *Educational Sciences: Theory and Practice*, *9*(1), 31-49.

Bailey, P., Onwuegbuzie, A. J., & Daley, C. E. (2000). Using learning style to predict foreign language achievement at the college level. *System*, *28*(1), 115-133.

Baldwin, L., & Sabry, K. (2003). Learning styles for interactive learning systems. *Innovations in Education and Teaching International*, *40*(4), 325-340.

Barbe, W. B., Swassing, R. H., & Milone, M. N. (1979). *Teaching through modality strengths: Concepts and practices*. Zaner-Bloser.

Barlett, C. P., & Anderson, C. A. (2012). Direct and indirect relations between the Big 5 personality traits and aggressive and violent behavior. *Personality and individual differences*, *52*(8), 870-875.

Barrett, K. R. (2004). A comparison of online teaching styles in Florida community colleges.

Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: a meta-analysis. *Personnel psychology*, *44*(1), 1-26.

Barrick, M. R., & Mount, M. K. (1996). Effects of impression management and self-deception on the predictive validity of personality constructs. *Journal of applied psychology*, *81*(3), 261.

Barry, B., & Stewart, G. L. (1997). Composition, process, and performance in self-managed groups: the role of personality. *Journal of Applied psychology*, *82*(1), 62.

Bartlett, F. C., & Bartlett, F. C. (1995). *Remembering: A study in experimental and social psychology* , 14. Cambridge University Press.

Baumgarten, F. (1933). 'Die Charktereigenschaften". [The character traits]. In: Beitraege zur Charakter- und Persoenlichkeitsforschung (whole No. 1). A. Francke, Bern, Switzerland

Bayrak, B. K. (2012). A Study on Learning Styles of Secondary School Student's According to Gender and Class Level. *Procedia-Social and Behavioral Sciences*, *46*, 843-847.

Bayrak, B. K., & Altun, S. (2009). Is there any difference between learning styles of student science teachers in relation to both their grade and gender?. *Procedia-Social and Behavioral Sciences*, *1*(1), 765-770.

Beceren, B. Ö., & Özdemir, A. A. (2010). The comparison of prospective preschool teachers' thinking styles and intelligence types. *Procedia-Social and Behavioral Sciences*, *2*(2), 2131-2136.

Beck, J. (2007). An exploration of the relationship between case study methodology and learning style preference. *Journal of Science Teacher Education*, *18*(3), 423-430.

Becta. (2005). Learning styles: an introduction to the research literature. Retrieved on July 6, 2008, from http://www.becta.org.uk.

Berger, C. F. (1974). A Comparison of Science Teaching Behavior with a Theoretical Construct. Retrieved from ERIC database. (ED 091 189).

Betoret, F. D. (2007). The influence of students' and teachers' thinking styles on student course satisfaction and on their learning process. *Educational Psychology*, *27*(2), 219-234.

Biggs, J. (2001) Enhancing learning: a matter of style or approach. In R.J. Sternberg & L.F. Zhang (Eds.), Perspectives on Thinking, Learning, and Cognitive Styles. London, UK: Lawrence Erlbaum Associates

Biggs, J. B. (1978). Individual and group differences in study processes. *British Journal of Educational Psychology*, *48*(3), pp. 266-279.

Biggs, J. B. (1985). The role of meta learning in study processes. *British journal of educational psychology*, *55*(3), pp. 185-212.

Biggs, J. B. (1987). *Student Approaches to Learning and Studying. Research Monograph*. Australian Council for Educational Research Ltd., Radford House, Frederick St., Hawthorn 3122, Australia..

Biggs, J. B. (1988). Assessing student approaches to learning. *Australian Psychologist*, *23*(2), pp. 197-206.

Biggs, J. B. (1989). Students' approaches to learning in Anglo-Chinese schools. *Educational Research Journal*, *4*, pp. 8-17.

Biggs, J. B. (1991). Approaches to learning in secondary and tertiary students in Hong Kong: Some comparative studies. *Educational Research Journal*, *6*(1), pp. 27-39.

Biggs, J. B. (1992). *Why and how do Hong Kong students learn? Using the learning and study process questionnaires*. Faculty of Education, University of Hong Kong.

Birrell, H. V., Phillips, C. J., & Stottc, D. H. (1985). Learning Style and School Attainment in Young Children A Follow-up Study. *School Psychology International*, *6*(4), 207- 218.

Brew, A., & Wright, T. (1990). Changing teaching styles. *Distance Education*, *11*(2), 183- 212.

Briesmaster,M & Briesmaster-Paredes,J.(2015). The relationship between teaching styles and NNPSETs anxiety levels, *System ,49 (1)* ,145-156.

Brightman, H. J. (1998). GSU master teacher program: On learning styles. *Master Teacher Programs: Improving University-Level Teaching and Learning, Georgia State University,* Retrieved from http://www.gsu/dschjb.

Bromfield, L. M., Clarke, V. A., & Lynch, N. (2001). Comparing alternate teaching styles to teach computing skills to girls in their English classes. *Computers & Education, 36*(4), 285-297.

Brookfield, S. (1990). *The skillful teacher: On technique, trust, and responsiveness in the classroom*. San Francisco: Jossey-Bass Publishers. Retrieved from ERIC database. (ED 326020).

Brown, H. D. (2000). Principles of language teaching and learning. *White Plains, NY: Longman*.

Brown, M., & Mayden, R. (1980). Correlates of College Learning Styles: A Preliminary Study. Paper Presented at the Meeting of the Eastern Educational Research Association, West Palm Beach, Florida.

Busato, V. V., Prins, F. J., Elshout, J. J., & Hamaker, C. (1999). The relation between learning styles, the Big Five personality traits and achievement motivation in higher education. *Personality and individual differences*, *26*(1), 129-140.

Çakmak, M. (2011). What are prospective teachers' opinions about their instructors' teaching styles?. *Procedia-Social and Behavioral Sciences*, *15*, 1960-1964.

Callan, R. J. (1996). Learning styles in the high school: A novel approach. *NASSP Bulletin*, *80*(577), 66-71.

Can, Ş. (2009). The effects of science student teachers' academic achievements, their grade levels, gender and type of education they are exposed to on their 4mat learning styles (Case of Muğla University, Turkey). *Procedia-Social and Behavioral Sciences*, *1*(1), 1853-1857.

Cano-Garcia, F., & Hughes, E. H. (2000). Learning and thinking styles: An analysis of their interrelationship and influence on academic achievement. *Educational Psychology*, *20*(4), 413-430.

Cano-Garcia, F., & Hughes, E. H. (2000). Learning and thinking styles: An analysis of their interrelationship and influence on academic achievement. *Educational Psychology, 20*(4), 413-430.

Canto-Herrera, P., & Salazar-Carballo, H. (2010). Teaching Beliefs and Teaching Styles of Mathematics Teachers and Their Relationship with Academic Achievement. *Online Submission*.

Carter, D. S. G. (1989). Cognitive Interactions and Teaching Style in Social Studies Classrooms: Towards A Typology. *The South Pacific Journal of Teacher Education, 17*(1), 15-26.

Carton, B. L. (1993). A comparison of learning styles, teaching styles, and personality styles of preservice Montana and Ohio agriculture teachers.

Cassidy, S. (2004). Learning styles: An overview of theories, models, and measures. *Educational Psychology*, *24*(4), 419-444.

Cassidy, S. (2006). Learning style and student self-assessment skill. *Education and Training*, *48*(2), 170-177.

Cattell, R. B. (1943). The description of personality: basic traits resolved into clusters. *The journal of abnormal and social psychology*, *38*(4), 476-506. doi:10.1037/h0054116.

Cattell, R.B., Eber, H.W. and Tatsuoka, M.M. (1970) Handbook for the Sixteen Personality Factor Questionnaire. Champaign, IL: Institute for Personality and Ability Testing.

Chan, D. W. (2001). Learning styles of gifted and non-gifted secondary students in Hong Kong. *Gifted Child Quarterly, 45*(1), 35-44.

Chang, Y. C., Kao, W. Y., Chu, C. P., & Chiu, C. H. (2009). A learning style classification mechanism for e-learning. *Computers & Education*, *53*(2), 273-285.

Chaturvedi, A., Chiu, C. Y., & Viswanathan, M. (2009). Literacy, negotiable fate, and thinking style among low income women in India. *Journal of Cross-Cultural Psychology*, *40*(5), 880-893.

Chen, C. J., Toh, S. C., & Ismail, W. M. F. W. (2005). Are learning styles relevant to virtual reality?. *Journal of Research on Technology in Education*, *38*(2), 123-141.

Chen, N. S., Wei, C. W., & Liu, C. C. (2011). Effects of matching teaching strategy to thinking style on learner's quality of reflection in an online learning environment. *Computers & Education*, *56*(1), 53-64.

Chilemba, E.B & Bruce, J.C. (2015) Teaching styles used in Malawian BSN programmes: A survey of nurse educator preferences, *Nurse Education Today, 35 (1)* ,55–60.

Choi, I., Lee, S. J., & Kang, J. (2009). Implementing a case-based e-learning environment in a lecture-oriented anaesthesiology class: Do learning styles matter in complex problem solving over time?*. *British Journal of Educational Technology*, *40*(5), 933- 947.

Cilliers, C. D., & Sternberg, R. J. (2001). Thinking Styles: Implications for optimising learning and teaching in university education. *South African Journal of Higher Education, 15*(1), pp.13.

Coffield, F., Moseley, D., Hall, E., & Ecclestone, K. (2004). Learning styles and pedagogy in post-16 learning: A systematic and critical review. Retrieved on December 12, 2007, from http://www.lsda.org.uk/files/pdf/1543.pdf

Cohen, J. H., & Amidon, E. J. (2004). Reward and punishment histories: A way of predicting teaching style?. *The Journal of Educational Research*, *97*(5), 269-280.

Cohen, R. A. (1967). *Primary group structure, conceptual styles and school achievement* (Doctoral dissertation, University of Pittsburgh).

Conti, G. J. (1978).Principles of adult learning scale: *An instrument for measuring teacher behaviour related to the collaborative teacher-learning mode*. Paper presented at the Adult Education Research Conference, Columbus, OH. Retrieved from ERIC database. (ED179 713).

Conti, G. J. (1979). *Principles of adult learning scale: An instrument for measuring teacher behavior related to the collaborative teaching-learning mode*. (Unpublished doctoral dissertation, Northern Illinois University).

Conti, G. J. (1989). Assessing teaching style in continuing education. *New Directions for Adult and Continuing Education*, *1989*(43), pp. 3-16.

Conti, G. J. (1989). Assessing teaching style in continuing education. In E. Hayes (Ed.), Effective teaching styles, pp. 3-16. San Francisco: Jossey-Bass.

Conti, G. J., Welborn, R. B. (1986). Teaching-learning styles and the adult learner. *Lifelong Learning: An Omnibus of Practice and Research*, *9*(8), pp. 20-24.

Cooper, S. E., & Miller, J. A. (1991). MBTI learning style-teaching style discongruencies. *Educational and Psychological Measurement*, *51*(3), 699-706.

Corey, S. M. (1940). The teachers out-talk the pupils. *The School Review*, pp. 745-752.

Costa Jr, P. T. (1991). Clinical use of the five-factor model: An introduction. *Journal of Personality Assessment*, *57*(3), pp. 393-398.

Costa, P. T., & McCrae, R. R. (1976). Age differences in personality structure: A cluster analytic approach. *Journal of gerontology*, *31*(5), pp. 564-570.

Costa, P. T., Jr., & McCrae, R. R. (1988). From catalog to classification: Murray's needs and the five factor model. *Journal of Personality and Social Psychology*, *55*, pp. 258-265.

Costa, P. T., Jr., & McCrae, R. R. (1989). *The NEO-PI/NEO-FFI manual supplement*. Odessa, FL: Psychological Assessment Resources.

Costa, P. T., Jr., & McCrae, R. R. (1992). *NEO PI-R professional manual.* Odessa, FL: Psychological Assessment Resources.

Costa, P. T., Jr., & McCrae, R. R. (1994). Set like plaster? Evidence for the stability of adult personality. In T. Heatherton & J. L. Weinberger (Eds.), Can personality change?, pp. 21-40. Washington, DC: American Psychological Association.

Costa, P. T., Jr., & McCrae, R. R. (1994a). Set like plaster? Evidence for the stability of adult personality. In T. F. Heatherton & J. L Weinberger (Eds.), Can personality change?, pp. 21-40. Washington, DC: American Psychological Association.

Costa, P. T., Jr., & McCrae, R. R. (1995). Domains and facets: Hierarchical personality assessment using the Revised NEO Personality Inventory. *Journal of Personality Assessment*, *64*, pp. 21-50.

Costa, P.T., Jr., & McCrae, R. R. (1985). *The NEO Personality Inventory manual*. Odessa, FL: Psychological Assessment Resources, Odessa.

Crews *et al.* (2000) A comparison of Secondary Business Education Students 'Learning Style with their teacher's instructional styles. *ERIC document [ED 451 194]*.

Crutsinger, C. A., Knight, D. K., & Kinley, T. (2005). Learning style preferences: Implications for web-based instruction. *Clothing and Textiles Research Journal, 23*(4), 266-277.

Curry, L. (1983) An organisation of learning styles theory and constructs, Retrieved from ERIC database. (ED 235 185).

Curry, L. (1987). *Integrating concepts of cognitive or learning style: A review with attention to psychometric standards*. Canadian College of Health Service Executives.

Curry, L. (1990). A critique of the research on learning styles. *Educational Leadership*, *48*(2), 50–56.

Curry, L. (1991). Patterns of learning style across selected medical specialities, *Educational Psychology, 11*, 247-278.

Curtner-Smith, M. D., Todorovich, J. R., McCaughtry, N. A., & Lacon, S. A. (2001). Urban teachers' use of productive and reproductive teaching styles within the confines of the national curriculum for physical education. *European Physical Education Review*, *7*(2), 177-190.

Dağ, F., & Geçer, A. (2009). Relations between online learning and learning styles. *Procedia-Social and Behavioral Sciences*, *1*(1), 862-871.

Dasari, P.(2006) The Influence of matching teaching style and learning style on the achievement in science of grade six learners, MA Education Dissertation.

De Bello, T. C. (1990). Comparison of eleven major learning styles models: Variables, appropriate populations, validity of instrumentation, and the research behind them. *Reading, Writing, and Learning Disabilities*, *6*(3), 203-222.

Dee, K. C., Nauman, E. A., Livesay, G. A., & Rice, J. (2002). Research report: learning styles of biomedical engineering students. *Annals of Biomedical Engineering*, *30*(8), 1100-1106.

Deggs, D. M., Machtmes, K. L., & Johnson, E. (2011). The significance of teaching perspectives among academic disciplines. *College Teaching Methods & Styles Journal (CTMS)*, *4*(8), 1-8.

Deggs, D. M., Machtmes, K. L., & Johnson, E. (2011). The significance of teaching perspectives among academic disciplines. *College Teaching Methods & Styles Journal (CTMS)*, *4*(8), 1-8.

Demirbas, O. O., & Demirkan, H. (2007). Learning styles of design students and the relationship of academic performance and gender in design education. *Learning and Instruction*, *17*(3), 345-359.

Di Fabio, A., & Palazzeschi, L. (2009). Emotional intelligence, personality traits and career decision difficulties. *International Journal for Educational and Vocational Guidance*, *9*(2), 135-146.

Digman, J. M. (1989). Five robust trait dimensions: Development, stability, and utility. Special Issue: Long-term stability and change in personality. *Journal of Personality*, *57*, pp. 195-214.

Dinçol, S., Temel, S., Oskay, Ö. Ö., Erdoğan, Ü. I., & Yılmaz, A. (2011). The effect of matching learning styles with teaching styles on success. *Procedia-Social and Behavioral Sciences*, *15*, 854-858.

Dixon, T., & Woolhouse, M. (1996). The Relationship Between Teachers' and Learners' Individual Teaching/Learning Styles. *Journal of Further and Higher Eduction*, *20*(3), 15-22.

Dixon, T., & Woolhouse, M. (1996). The Relationship Between Teachers' and Learners' Individual Teaching/Learning Styles. *Journal of Further and Higher Eduction*, *20*(3), 15-22.

Doğruer, N., Meneviş, İ., & Eyyam, R. (2010). EFL Teachers' beliefs on learning English and their teaching styles. *Procedia-Social and Behavioral Sciences*, *3*, 83-87.

Dressel, P. L., & Marcus, D. (1982). *On Teaching and Learning in College. Reemphasizing the Roles of Learners and the Disciplines*. The Jossey-Base Series in Higher Education. San Francisco.

Dunn, K. J., & Frazier, E. R. (1990a). Teaching styles. In K. Dunn, & R. Dunn (Eds.), *Journal of Reading, Writing, and Learning Disabilities International*, *6*(3), pp. 347-367.

Dunn, K. J., & Frazier, E. R. (1990b). *Teaching styles.* Professors of Secondary School Administration and Supervision (PSSAS): Instructional Leadership Series. Reston, VA: National Association of Secondary School Principals. Retrieved from ERIC database. (ED 327964).

Dunn, K., & Dunn, R. (1972). *Practical approaches to individualizing instruction: Contracts and other effective teaching strategies.* New York: Parker.

Dunn, K., & Dunn, R. (1975). *Educator's self-teaching guide to individualizing instructional programs.* New York: Parker.

Dunn, K., & Dunn, R. (1977). *Administrator's guide to new programs for faculty management and evaluation.* New York: Parker.

Dunn, R. (1983). Learning style and its relation to exceptionality at both ends of the spectrum. *Exceptional Children, 49,* pp. 496-506.

Dunn, R. (1984). Learning style: State of the scene. *Theory Into Practice, 23,* pp. 10-19.

Dunn, R. (1990). Learning style: State of the science. *Theory Into Practice, 13*(1), pp. 10–19.

Dunn, R. (1991). Introduction to learning styles and brain behavior. *Inter Education*, *15*(46), pp. 6–11.

Dunn, R. (2001). Learning style differences of nonconforming middle-school students. *NASSP bulletin*, *85*(626), 68-74.

Dunn, R. (2004). Capitalizing on college students' learning styles: Theory, practice, and research. In R. Dunn & S. Griggs (Eds.), *Practical approaches to using learning styles in higher education,* pp. 3–18. Westport, CT: Greenwood.

Dunn, R. S., & Dunn, K.J. (1979). Learning styles/teaching styles: Should they . . . can they . . . be matched? *Educational Leadership, 36,* pp. 238-244.

Dunn, R., & Dunn, K. (1972). *Practical approaches to individualizing instruction.* Englewood Cliffs, NJ: Prentice Hall Inc.

Dunn, R., & Dunn, K. (1978). *Teaching students through their individual learning styles: A practical approach*. Reston, VA: Reston.

Dunn, R., & Dunn, K. (1993). *Teaching secondary students through their individual learning styles*. Boston: Allyn and Bacon.

Dunn, R., & Dunn, K. (1993).*Teaching secondary school students through their individual learning styles: Practical approaches for grades 7-12*. Boston: Allyn & Bacon.

Dunn, R., & Dunn, K. (1998). *Practical approaches to individualizing staff development for adults*. Westport, CT: Praeger.

Dunn, R., & Dunn, K. (2006). *International learning styles network*. Retrieved July 1, 2008, from http://www.learningstyles.net/index.php

Dunn, R., & Griggs, S. (2000). *Practical approaches to using learning styles in higher education*. Westport, CT: Bergin and Garvey.

Dunn, R., & Griggs, S. (2000). *Synthesis of the Dunn and Dunn learning-styles model research: Who, when, where, why, and so what?* .Utopia Parkway, Jamaica, NY.

Dunn, R., & K. Dunn. (1978). *Teaching students through their individualized learning styles.* Va.: Preston Publishing. Effective College Teaching: The Quest for relevance, Washington DC,

Dunn, R., Beaudry, S., & Klavas, A. (2002). Survey of research on learning styles. *California Journal of Science Education, 2*(2), pp. 75-96.

Dunn, R., Dunn, K. & Price, G.E. (1989) *Learning Styles Inventory* (Lawrence, KS, Price Systems).

Dunn, R., Dunn, K., & Perrin, J. (1994). Teaching young children through their individual learning styles. Boston, MA: Allyn & Bacon, Inc.

Dunn, R., Dunn, K., & Price, G.E. *(1975). The learning style inventory*. Lawrence, KS: Price Systems.

Dunn, R., Dunn, K., & Price, G.E. (1978). *Teaching students through their individual learning styles.* Reston, VA: Reston Publishing.

Dunn, R., Dunn, K., & Price, G.E. (1979). *The productivity environmental preference survey*. Lawrence, KS: Price Systems.

Dunn, R., Honigsfeld, A., Doolan, L. S., Bostrom, L., Russo, K., Schiering, M. S., et al. (2009). Impact of learning-style instructional strategies on students' achievement and attitudes: Perceptions of educators in diverse institutions. *Clearing House, 82*(3), 135–140.

Dupin-Bryant, P. A. (2004). Teaching styles of interactive television instructors: A descriptive study. *American Journal of Distance Education*, *18*(1), 39-50.

Eble, K. E.(1980).Teaching styles and faculty behaviour. In K. E. Eble (Ed.). *Improving teaching styles*, pp. 95-104, San Francisco: Jossey-Bass.

Egeren, L. F. V.(2009). A cybernetic model of global personality traits. *Personality and Social Psychology Review, 13*, 92, pp. 1-18.

Entwistle, N. (1981). *Styles of teaching and learning: An integrated outline of educational psychology for students, teachers, and lecturers*. New York: Wiley.

Entwistle, N.J. (1979). Motivation, styles of learning and the academic environment. Edinburgh, The University of Edinburgh, Retrieved from ERIC database. (ED190 636).

Esfandabad, *H. S. (2010). A comparative study of learning styles among monolingual (Persian) and bilingual (Turkish-Persian) secondary school students. Procedia- Social and Behavioral Sciences, 5, 2419-2422.*

Evans, C. (2004). Exploring the relationship between cognitive style and teaching style. *Educational Psychology, 24(4), 509-530.*

Evertson, C. M., & Weade, R. (1989). Classroom management and teaching style: Instructional stability and variability in two junior high English classrooms. *The Elementary School Journal*.

Eysenck, H. J. (1991). Dimensions of personality: 16, 5, or 3?--Criteria for a taxonomic paradigm. *Personality and Individual Differences*, *12*, pp.773-790.

Fabbri, M., Antonietti, A., Giorgetti, M., Tonetti, L., & Natale, V. (2007). Circadian typology and style of thinking differences. *Learning and Individual Differences*, *17*(2), 175-180.

Fan, W. Q., &Ye,S. (2003). Teaching Styles among Shanghai Teachers in Primary and Secondary Schools. *Educational Psychology*, *27*(2), pp. 255-272.

Fan, W., & Zhang, L. F. (2009). Are achievement motivation and thinking styles related? A visit among Chinese university students. *Learning and Individual Differences*, *19*(2), 299-303.

Fan, W., Zhang, L. F., & Watkins, D. (2010). Incremental validity of thinking styles in predicting academic achievements: an experimental study in hypermedia learning environments. *Educational Psychology*, *30*(5), 605-623.

Fan,J & Zhang, L.F.(2014) The role of perceived parenting styles in thinking styles, *Learning and Individual Differences,32 (1),* 204–211.

Felder, R. (1988). Learning and teaching styles in engineering education. *Engineering Education, 78*(7), pp. 674–681.

Felder, R. (1996). Matters of style. *ASEE Prism, 6*(4), pp. 18–23.

Felder, R. M. (1993). Reaching the second tier: Learning and teaching styles in college science education. *J. College Science Teaching, 23*(5), pp. 286-290.

Felder, R., & Henriques, E. (1995). Learning and teaching styles in foreign and second language education. *Foreign Language Annals, 28*(1), pp. 21–31.

Felder, R.M., & Silverman, L.K. (1988). Learning and teaching styles in engineering education. *Engineering Education, 78,* pp. 674–681.

Felder, R.M., & Spurlin, J. (2005). Applications, Reliability and Validity of the Index of Learning Styles. *International Journal on Engineering Education, 21*(1), pp. 103- 112.

Fischer, B. B., & Fischer, L. (1979). Styles in teaching and learning. *Educational Leadership, 36*(4), pp. 245–254.

Fischer, B., & Fischer, L . (1999) Styles in teaching and learning: Educational Leadership, *36*, pp. 345-361.

Fisher, D., Fraser, B., & Kent, H. (1998). Relationships between teacher-student interpersonal behaviour and teacher personality. *School Psychology International*, *19*(2), 99-119.

Fitzgerald, D. F., & Bloodsworth, G. (1996). Addressing the neglected needs of rural learners: A learning style approach. *The Clearing House*, *69*(3), 169-170.

Fjell, A. M., & Walhovd, K. B. (2004). Thinking styles in relation to personality traits: An investigation of the Thinking Styles Inventory and NEO-PI-R. *Scandinavian Journal of Psychology*, *45*(4), 293-300.

Fjell, A. M., & Walhovd, K. B. (2004). Thinking styles in relation to personality traits: An investigation of the Thinking Styles Inventory and NEO-PI-R. *Scandinavian Journal of Psychology*, *45*(4), 293-300.

Flanders, N. A. (1960). *Teacher influence, pupil attitudes, and achievement. Cooperative research project* No.397. Retrieved from ERIC database. (ED 002 865).

Flanders, N. C. (1970). Reviewing research on teaching effectiveness. *Classroom Interaction Newsletter, 6*(1), pp. 1-4.

Fleming, S., Mckee, G., & Huntley-Moore, S. (2011). Undergraduate nursing students' learning styles: a longitudinal study. *Nurse education today*, *31*(5), 444-449.

Fortunato, V. J., & Furey, J. T. (2012). An examination of thinking style patterns as a function of thinking perspective profile. *Personality and Individual Differences*, *53*(7), 849-856.

Foster, V. L. (2006). *Teaching-learning style preferences of special education teacher candidates at Northeastern State University in Oklahoma* (Doctoral dissertation, Oklahoma State University).

Frazier, E. R,(1992). An analysis of and comparison between self assessed, individualized, learning based teaching practices and behaviours within selected dimensions of the instructional process and individual's beliefs about student learning.(Doctoral dissertations, St. John's University, 1992), *Dissertation Abstracts International*,*53*(10), 3433-A.

Fries, C. H. (2012). *Teaching Style Preferences and Educational Philosophy of Teacher Education Faculty at a State University* (Doctoral dissertation, Oklahoma State University).

Fryer, M., & Collings, J.A. (1991). Teachers' views about creativity. *British Journal of Educational Psychology, 61,* pp. 207–219.

Gafoor, K. A. & VidyaVelayudhan.(2011). Style Preferences in Thinking of Student-Teachers in Kerala, *Indian Psychological Review, 76*(2), 121-128.

Gafoor, K. A. &Vidya, V. (2010). Influence of congruence between thinking styles of student teachers and educators on student teachers' course satisfaction, *Indian Journal of Teacher Education 7(1*), 25-41.

Gafoor, K. A. &Vidya, V. (2010). Influence of congruence between thinking styles of student teachers and educators on student teachers' course satisfaction, *Indian Journal of Teacher Education 7(1*), 25-41.

Gafoor, K. A. &VidyaVelayudhan.(2011). Style Preferences in Thinking of Student-Teachers in Kerala, *Indian Psychological Review, 76*(2), 121-128.

Gafoor, K. A. (2007). Does Present Education Favour Executive and External Styles of Thinking at the Expense of Achievement in Science?. *Online Submission***.**ERIC Number: ED504150

Gafoor, K. A. (2007). Does Present Education Favour Executive and External Styles of Thinking at the Expense of Achievement in Science?. *Online Submission***.**ERIC Number: ED504150.

Gafoor, K. A., & Lavanya, M. P. (2008).Interaction of Thinking Styles and Intelligence: Effect on Science Achievement.*International Educator 20(1),* 11-17.

Gafoor, K. A., & Lavanya, M. P. (2008).Interaction of Thinking Styles and Intelligence: Effect on Science Achievement.*International Educator 20(1),* 11-17.

Gafoor,A. & Babu,H, (2013,February).Preferred teaching behavior of student teachers-A post B.Ed study from Kerala..In *Significance and Development of value Education in Teacher Education* .Paper Proceedings at the International Seminar (Perambalur), Tamilnadu (pp.55-60).

Galbraith, M. W. (Ed.). (2004). *Adult Learning Methods: A Guide for Effective Instruction.* (3rd ed.). Malabar, Florida: Krieger Publishing Co.

Galbraith, M. W., & Sanders, R. E. (1987). Relationship between perceived learning style and teaching style of junior college educators. *Community/Junior College Quarterly*, *11*(3), 169-177.

Galbraith, M.W., & Sanders, R.E. (1987). Relationship between perceived learning style and teaching style of Junior college educators, *Community/Junior College Quarterly, 22*(10), pp. 29-33.

Galton, F. (1883). *Inquiries into Human Faculty and its Development.* London, MacMillan.

Gardner, H. (1993). *Frames of mind*. New York: Basic Books. Gardner, H. (1999). *Intelligence reframed: Multiple intelligences for the 21st century*. New York: Basic Books.

Gardner, H. (1993). *Frames of mind: A theory of multiple intelligences*. New York: Basic.

Gardner, H. (2004). Audiences for the theory of multiple intelligences. *Teachers College Record, 106*(1), pp. 212–220.

Garger, S., & Guild, P.(1984).Learning styles: The crucial differences, *Curriculum Review*, pp. 9- 12.

Gauthier, C., Dembélé, M., Bossonnette, S., & Richard, M. (2004). Quality of teaching and quality of education: A review of research findings. *UNESCO.Retrieved online March*, *22*, 2015.

Gayle, G. M. (1994). A new paradigm for heuristic research in teaching styles. *Religious education, 89*(1), 8-41.

Gayle, M. H. (1994). A new paradigm for heuristic research in teaching styles. *Religious Education, 89(1), pp.* 9-41.

Giles, J., Ryan, D. A., Belliveau, G., De Freitas, E., & Casey, R. (2006). Teaching style and learning in a quantitative classroom. *Active Learning in Higher Education*, *7*(3), 213- 225.

Goldberg, L. R. (1990). An alternative description of personality: The Big Five factor structure. *Journal of Personality and Social Psychology*, *59*, pp. 1216-1229.

Goldberg, L. R. (1992). The development of markers for the Big- Five factor structure. *Psychological Assessment*, 4, pp. 26-42.

Goldstein, K. M., & Blackman, S. (1978). *Cognitive styles.* New York: Wiley.

Gough, H. G. (1987). *The California Psychological Inventory administrator's guide*. Palo Alto, CA: Consulting Psychologists Press.

Gras, R. M. L., Berná, J. C., & López, P. S. (2009). Thinking styles and coping when caring for a child with severe spina bifida. *Journal of Developmental and Physical Disabilities, 21*(3), 169-183.

Grasha, A. F. (1990). Using traditional versus naturalistic approaches to assessing learning styles in college teaching. *Journal on Excellence in College Teaching, 1*, pp. 23-38.

Grasha, A. F. (1994). A matter of style: The teacher as expert, formal authority, personal model, facilitator, and delegator. *College Teaching, 36*(4), pp. 142-149.

Grasha, A. F. (1996). *Teaching with Style*: Pittsburgh, PA: Alliance Publishers.

Grasha, A.F. (1972). Observations on relating teaching goals to student response styles and classroom methods. *American Psychologist, 27*, pp. 144- 147.

Grasha, A.F. (1984). Learning styles: The journey from Greenwich Observatory (1796) to the college classroom (1984). *Improving College and University Teaching, 32,* pp. 46-53.

Grasha, A. F. (2002). *Teaching with Style*: Pittsburgh, PA: Alliance Publishers.

Gregorc, A. F. (1985). *Inside styles: Beyond the basics*. Maynard, MA: Gabriel Systems.

Gregorc, A.F.(1979) Learning/Teaching Styles :potent forces behind the scenes. *Educational Leadership*, *36*(4), pp. 234-236.

Gregorc, A.R. (1982). *Style Delineator*. Maynard, MA: Gabriel Systems.

Grigorenko, E. L., & Sternberg, R. J. (1992). *Thinking styles in school settings*. Unpublished manuscript, Yale University, New Haven, CT.

Grigorenko, E. L., & Sternberg, R. J. (1993). *Thinking Styles in Teaching Inventory.* Unpublished test. Yale University, New Haven, CT.

Grigorenko, E. L., & Sternberg, R. J. (1993a). *Set of Thinking Styles Task for Students*. Unpublished test: Yale University. New Haven, CT.

Grigorenko, E. L., & Sternberg, R. J. (1993b). *Students' Thinking Styles Evaluated by Teachers*. Unpublished test: Yale University. New Haven, CT.

Grigorenko, E. L., & Sternberg, R. J. (1993c). *Thinking Styles Inventory in Teaching*: Unpublished test. New Haven, CT: Yale University.

Grigorenko, E. L., & Sternberg, R. J. (1993d). *Thinking styles inventory in teaching.* Unpublished test. Yale University. New Haven, CT.

Grigorenko, E. L., & Sternberg, R. J. (1995). Thinking styles. In D. Saklofske & M. Zeidner (Eds.), *International Handbook of Personality and Intelligence,* pp. 205- 230. New York: Plenum.

Grigorenko, E. L., & Sternberg, R. J. (1997). Style of thinking, abilities, and academic performance. *Exceptional Children, 63*, pp. 295-312.

Grigorenko, E. L., & Sternberg, R. J. (1997). Styles of thinking, abilities and academic performance. *Exceptional Children*, *63*(3), pp. 295–312.

Groves, K., Vance, C., & Paik, Y. (2008). Linking linear/nonlinear thinking style balance and managerial ethical decision-making. *Journal of Business Ethics*, *80*(2), 305- 325.

Guild *et al.* (1985).Marching to different drummers, Association for supervision and curriculum, Alexandria, ERIC (ED 269 839).

Gujjar, A. A., & Tabassum, R. (2011). Assessing learning styles of student teachers at federal college of education. *Procedia-Social and Behavioral Sciences*, *30*, 267- 271.

Hargreaves, A. (2003). *Teaching in the knowledge society: Education in the age of insecurity*. Teachers College Press.

Hativa, N., & Birenbaum, M. (2000). Who prefers what? Disciplinary differences in students' preferred approaches to teaching and learning styles. *Research in Higher Education, 41*(2), 209-236.

Hayes, E. (Ed.). (1989). Assessing teaching style in continuing education. *Effective teaching styles.* San Francisco: Jossey-Bass.

Healey, M., Kneale, P., & Bradbeer, J. (2005). Learning styles among geography undergraduates: an international comparison. *Area*, *37*(1), 30-42.

Heffler, B., & Sandell, R. (2009). The role of learning style in choosing one's therapeutic orientation. *Psychotherapy Research*, *19*(3), 283-292.

Heidari, F., & Bahrami, Z. (2012). The relationship between thinking styles and metacognitive awareness among Iranian EFL learners. *International Journal of Linguistics*, *4*(3), pp-721.

Heikkinen, M. (1978).*The teaching style Q-Sort: A description of its uses in assessing teaching style*. Retrieved from ERIC database. (ED 151 351).

Heimlich, J E., & Norland, E. (2002). Teaching style: where are we now? *New Directions for Adult and Continuing Education, 93*, pp. 17–25.

Heimlich, J. E. (1990). Measuring teaching style: A correlational study between the Van Tilburg/Heimlich Sensitivity Measure and the Myers-

Briggs personality indicator on adult educators in central Ohio. (Unpublished doctoral dissertation, The Ohio State University).

Heimlich, J. E., & Norland, E. (1994). Developing teaching style in adult education. San Francisco, CA: Jossey-Bass Publishers.

Hemmingsson, H., Borell, L., & Gustavsson, A. (1999). Temporal aspects of teaching and learning-implications for pupils with physical disabilities. *Scandinavian Journal of Disability Research, 1*(2), 26-43.

Henson, K. T., & Borwick, P. (1984).Matching styles: A historical look. *Theory into Practice*, *23*(1), pp. 3-9.

Heredia, A. (1999). *Cultural learning styles.* Retrieved on April 5, 2004 from http://library.educationworld.net/a12/a12-166.html

Hickson, J., & Baltimore, M. (1996). Gender related learning style patterns of middle school pupils. *School Psychology International, 17*(1), 59-70.

Hickson, J., Land, A. J., & Aikman, G. (1994). Learning style differences in middle school pupils from four ethnic backgrounds. *School Psychology International, 15*(4), 349- 359.

Hill, J. S. (1976). *Cognitive Style Interest Inventory*. Bloomfield Hills, MI: Oakland Community College Press.

Hill, J. S. (1976). *The Educational Sciences.* Bloomfield Hills, MI: Oakland Community College Press.

Hinely, R. T., Galloway, C. M., Coody, B. E., & Sandefur, W. S. (1966). An exploratory study of teaching styles among student teachers. *The Journal of Experimental Educational*, 30-35.

Hogan, R. (1986). Hogan Personality Inventory manual. Minneapolis, MN: National Computer Systems.

Holland, A. S., & Roisman, G. I. (2008). Big Five personality traits and relationship quality: Self-reported, observational, and physiological evidence. *Journal of Social and Personal Relationships*, *25*(5), 811-829.

Holland, J. L. (1973). *Making vocational choices: A theory of careers*. Englewood Cliffs, NJ: Prentice-Hall.

Honey, P., & Mumford, A. (1986). *Using Your Learning Styles* (Maidenhead, Berkshire, Peter Honey).

Honey, P., & Mumford, A. (1992). *The manual of learning styles*. Maidenhead, England: Honey.

Honigsfeld, A., & Schiering, M. (2004). Diverse approaches to the diversity of learning styles in teacher education. *Educational Psychology*, *24*(4), 487-507.

Hossein, K. M., Fatemeh, D., Fatemeh, O. S., Katri, V. J., & Tahereh, B. (2010). Teaching style in clinical nursing education: A qualitative study of Iranian nursing teachers' experiences. *Nurse education in practice*, *10*(1), 8-12.

Hsieh, S. W., Jang, Y. R., Hwang, G. J., & Chen, N. S. (2011). Effects of teaching and learning styles on students' reflection levels for ubiquitous learning. *Computers & Education*, *57*(1), 1194-1201.

Huang, E. (2009). Teaching Button-Pushing versus Teaching Thinking The State of New Media Education in US Universities. *Convergence: The international journal of research into new media technologies*, *15*(2), 233-247.

Hussain, N., & Ayub, N. (2012). Learning Styles of Students and Teaching Styles of Teachers in Business Education: A Case Study of Pakistan. *Procedia-Social and Behavioral Sciences*, *69*, 1737-1740.

Hwang, G.-J., Sung, H.-Y., Hung, C.-M., & Huang, I. (2013). A Learning Style Perspective to Investigate the Necessity of Developing Adaptive Learning Systems. *Educational Technology & Society*, *16* (2), 188–197.

Ismail, A., Hussain, R. M. R., & Jamaluddin, S. (2010). Assessment of students' learning styles preferences in the faculty of science, Tishreen University, Syria. *Procedia- Social and Behavioral Sciences*, *2*(2), 4087-4091.

Iurea, C., Neacsu, I., Safta, C. G., & Suditu, M. (2011). The study of the relation between the teaching methods and the learning styles–The impact upon the students' academic conduct. *Procedia-Social and Behavioral Sciences*, *11*, 256-260.

James, W. (1890). *The Principles of Psychology, 2*, London, MacMillan.

James, W. B., & Gardner, D. L. (1995). Learning styles: Implications for distance learning. *New Directions for Adult and Continuing Education*, *67*, pp. 19-32.

John, O. P. (1990). The "Big-Five" factor taxonomy: Dimensions of personality in the natural language and in questionnaires. In L. A. Pervin (Ed.), *Handbook of personality theory and research,* pp. 66-100. New York: Guilford.

John, O. P., & Srivastava, S. (1999). The big five taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O.P.

John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 102–138). New York: Guilford.

John, O. P., Donahue, E. M., & Kentle, R. L. (1991). The Big Five Inventory--Versions 4a and 54.Berkeley: University of California, Berkeley, Institute of Personality and Social Research.

John, S. V., Singh, B. G., & Verma, O. P. (2011). Thinking Styles and Academic Performance Among Tribal and Non-tribal Students. *Psychological Studies, 56*(2), 220-231.

Jonassen, D.H. & Grabowski, B.L. (1993) *Handbook of Individual Differences, Learning and Instruction* .Hillsdale, NJ, Lawrence Erlbaum Associates.

Jones, C., Reichard, C., & Mokhtari, K. (2003). Are students' learning styles discipline specific?. *Community College Journal of Research &Practice*, *27*(5), 363-375.

Joshanloo, M., & Nosratabadi, M. (2009). Levels of mental health continuum and personality traits. *Social Indicators Research*, *90*(2), 211-224.

Joyce, B., & Weil, M. (1996). *Models of teaching* (5th ed.). Boston: Allyn and Bacon.

Jung, C. (1923). *Psychological types*. New York: Harcourt Brace.

Jung, C. G. (1971). *Psychological types: A revision* by R. F. C. Hull of the translation by H. G. Baynes. Princeton, N.J.: Princeton University Press.

Kagan, J. (1965). Individual difference in the resolution of response uncertainty. *Journal of Personality and Social Psychology*, *2*, pp. 154-160.

Kagan, J. (1966). Developmental studies in reflection and analysis, in: A. H. KIDD & J.L.RIVOIRE (Eds) *Perceptual Development in Children*, New York, International University Press.

Kagan, J., Rosman, B.L., Day, D., Albert, J. & Philips, W. (1964) Information processing in the child: significance of analytic and reflective attitudes, *Psychological Monographs, 78*, (1).

Kao, G. Y. M., Lei, P. L., & Sun, C. T. (2008). Thinking style impacts on Web search strategies. *Computers in Human Behavior, 24*(4), 1330-1341.

Kaplan, E. J., & Kies, D. A. (1995). Teaching Styles and Learning Styles: Which comes first? *Journal of Instructional Psychology, 22* (10), pp. 29-33.

Karns, G. L. (2006). Learning style differences in the perceived effectiveness of learning activities. *Journal of Marketing Education*, *28*(1), 56-63.

Karsenti, T., & Thibert, G. (1994). The Relationship between Teaching Style and Within- Term Changes in Junior-College Student Motivation.

Kaufmann, G. (1989). The Assimilator-Explorer Inventory, in: O. Martinsen, *Cognitive Style and Insight, Ph.D. thesis,* Faculty of Psychology, University of Bergen, Norway.

Kaufmann. G., & Martinsen, O. (1991). The explorer and the assimilator: A theory and measure of cognitive style in problem solving. *International Creativity Network Newsletter, 1*, pp. 8-9.

Keefe, J.W. & Monk, J.S. (1986). *Learning Styles Profile Examiner's Manual,* Reston, VA: National Association of Secondary School Principals.

Keefe, J.W. (1982). Assessing student learning styles: An overview. In Student learning styles and brain behavior. Reston, VA: National Association of Secondary School Principals, pp. 43-53.

Keefe, J.W. (1987) *Learning Style: theory and practice*, Reston, VA: National Association of Secondary School Principals.

Keefe, J.W. (1989) *Learning Style Profile Handbook: Vol. II, accommodating perceptual study and instructional preferences*, Reston, VA: National Association of Secondary School Principals.

Keefe, J.W. (1990) *Learning Style Profile Handbook: Vol. I, developing cognitive skills*, Reston, VA: National Association of Secondary School Principals.

Khandaghi, M. A., & Farasat, M. (2011). The effect of teacher's teaching style on students' adjustment. *Procedia-Social and Behavioral Sciences*, *15*, 1391-1394.

Khandaghi, M. A., & Rajaei, M. (2011). The comparison of students and educators preferred teaching styles in teacher educating centres. *Procedia-Social and Behavioral Sciences*, *15*, 1875-1880.

Khasawneh, S. (2011). Thinking style preferences of vocational students at the university level: A prospective workforce development approach. *International Journal of Applied Educational Studies*, *10*(1), 78.

Kirby, J., Moore, P. & Schofield, N. (1988) Verbal and visual learning styles, *Contemporary Educational Psychology*, *13*, pp. 169-184.

Kirton, M.J. (1976). Adaptors and innovators, a description and measure, *Journal of Applied Psychology*, *61*, pp. 622-629.

Kirton, M.J. (1994) (Ed.) *Adaptors and Innovators (*2nd ed.). London, Routledge.

Klages, L. (1926). *The science of character* (Translated 1932). London: Allen and Unwin.

Klinger, T. H. (2006). Learning Approach, Thinking Style and Critical Inquiry. *The International Journal of Creativity & Problem Solving*, *16*(1), 91-113.

Knowles, M. S. (1970). *The modern practice of adult education* (Vol. 41). New York: New York Association Press.

Kogan, N. & Wallach, M.A. (1964). *Risk Taking*, New York: Holt, Rinehart and Winston.

Kogan, N. (1973). Creativity and cognitive style: A life-span perspective. In P. Baltes & K. Shaie (Eds.), *Life span developmental psychology: Personality and socialisation* (pp. 266–273). New York: Academic Press.

Kogan, N. (1980) Cognitive styles and reading performance, *Bulletin of the Orton Society*, *30*, pp.63-78.

Kogan, N., & Saarni, C. (1990). Cognitive style in children: Some evolving trends. In O. N.Saracho (Ed.), *Cognitive style and early education* (pp. 3–31). New York: Gordon & Breach.

Kolb, D. A. (1984). *Experiential learning*. Englewood Cliffs, NJ: Prentice Hall Inc.

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice-Hall.

Kolb, D. A.(1985).*Learning Style Inventory and technical manual,*. Boston: McBer & Company.

Kolb, D.A. (1976). *The Learning Style Inventory: Technical manual.* Boston, MA: McBer.

Kolb, D.A. (1981). Learning styles and disciplinary differences. In A.W. Chickering (Ed.), *The Modern American College* (pp. 232–255). San Francisco: Jossey-Bass.

Komarraju, M., Karau, S. J., Schmeck, R. R., & Avdic, A. (2011). The Big Five personality traits, learning styles, and academic achievement. *Personality and Individual Differences, 51*(4), 472-477.

Koppleman. K. (1980). *The relationship of cognitive style to teaching style*. Paper presented to the Midwest Educational Research Association, Toledo, OH. Retrieved from ERIC database. (ED 194 609).

Kraska, M., & Harris, S. (2007). Cognitive and Teaching Style Preferences of Officers Attending the Air Force Reserve Officer Training Instruction Course.

Kulinna, P. H., & Cothran, D. J. (2003). Physical education teachers' self-reported use and perceptions of various teaching styles. *Learning and Instruction, 13*(6), 597-609.

LaBillois, J. M., & Lagacé-Séguin, D. G. (2009). Does a good fit matter? Exploring teaching styles, emotion regulation, and child anxiety in the classroom. *Early Child Development and Care, 179*(3), 303-315.

Lacey, C. H., Saleh, A., & Gorman, R. (1998). Teaching Nine to Five: A Study of the Teaching Styles of Male and Female Professors. ERIC Document Reproduction Service *ED 442334*

Lackey. (1997). *APEO Faculty Manual, Chapter 4.* [On- line]. Available http://www.apeo.org/schools/faculty/chp4.html

Lapides, J. (1980). Teaching styles in adult education: an exploratory essay. *Revue ATEE Journal*, *3*(4), 191-205.

Lau, W. W., & Yuen, A. H. (2009). Exploring the effects of gender and learning styles on computer programming performance: implications for programming pedagogy. *British Journal of Educational Technology*, *40*(4), 696-712.

Lawrence, M. V. M. (1997). Secondary school teachers and learning style preferences: Action or watching in the classroom?. *Educational Psychology*, *17*(1-2), 157-170.

Lee, L. Y., & Li, C. Y. (2008). The moderating effects of teaching method, learning style and cross-cultural differences on the relationship between expatriate training and training effectiveness. *The International Journal of Human Resource Management*, *19*(4), 600-619.

Lenz, M. J. (1982). Managing your risks American School and University, *54*(10), pp. 38-42

Letteri, C. A. (1980).Cognitive profile basic determinant of academic achievement, *Journal of Educational Research*, *73*, pp. 195-199.

Li, C., & Kam, W. K. (2011). Mosston's Reciprocal Style of Teaching: A Pilot Study in Hong Kong. *New Horizons in Education*, *59*(2), 27-37.

Li, Y. S., Chen, P. S., & Tsai, S. J. (2008). A comparison of the learning styles among different nursing programs in Taiwan: implications for nursing education. *Nurse Education Today*, *28*(1), 70-76.

Liu, R., Qiao, X., & Liu, Y. (2006). A paradigm shift of learner-centered teaching style: Reality or illusion. *Arizona Working papers in SLAT*, *13*, 77-91.

Loehlin, J. C., McCrae, R. R., Costa, P. T., Jr., & John, O. P. (1998). Heritabilities of common and measure specific components of the Big Five personality factors. *Journal of Research in Personality*, *32*, pp. 431-453.

Loo, R, (1997). Evaluating change and stability in learning styles- a methodological concern.*Educational Psychology*, *17*, pp. 95-100.

Loo, R. (2004). Kolb's learning styles and learning preferences: is there a linkage?. *Educational Psychology*, *24*(1), 99-108.

Louange, J. E. G. (2007). An Examination of the Relationships between Teaching and Learning Styles, and the Number Sense and Problem Solving Ability of Year 7 Students. *Online Submission*.

Lowman, J. (1984). *Mastering the techniques of teaching*. San Francisco: Jossey-Bass.

Marshall,C.(1991).Teacher learning styles: How they affect student learning. *The Clearing House*,*64*(4),225-227.

Martinsen, O. (1994). *Cognitive style and insight*. (Doctoral dissertation, University of Bergen). Norway.

Marton, F. (1976). What does it take to learn? Some implications on an alternative view of learning. In Entwistle, N. J. (ed.), *Strategies for Research and Development in Higher Education* (pp. 200–222). Amsterdam: Swets and Zeitlenger.

Mawhinney,T.S.(2002).The effects of teaching prescriptions on the self-assessed teaching style and beliefs of secondary school teachers. (Doctoral dissertations, St.John's University).

Mayer, R. E. (1997). Learning with Multimedia: Are we asking the right questions? *Educational Psychologist, 32*, 1-19. doi:10.1207/s15326985ep3201_1

Mayer, R. E., & Anderson, R. B. (1991). Animations need narrations: an experiment al test of a dual-coding hypothesis. *Journal of Educational Psychology, 83*(4), 484-490.(EJ442338)

Mayer, R. E., & Sims, V. K. (1994). For whom is a picture worth a thousand words? Extensions of a dual-coding theory of multimedia learning. *Journal of Educational Psychology, 86*(3), 389-401. http://dx.doi.org/10.1037/0022-0663.86.3.389

McCann, S. J. H. (2011). Emotional health and the Big Five personality factors at the American state level. *Journal of Happiness Studies, 12*(4), 547-560.

McCarthy, B. (1980). *The 4MAT system: Teaching to learning styles with right/left mode techniques*. Oak Brook, IL: Excel, Inc.

McCarthy, B. (1982). Improving staff development through CBAM and 4MAT. *Educational Leadership, 40*(1), 20-25.

McCarthy, B. (1985). What 4MAT training teaches us about staff development. *Educational Leadership, 42*(7), 61-68.

McCarthy, B. (1987). *The 4MAT system: Teaching to learning styles with right/left mode techniques*. Revised Edition. Oak Brook, IL: Excel, Inc.

McCarthy, B. (1990). Using the 4MAT system to bring learning styles to schools. *Educational Leadership*, *48*(2), 31–37. ERIC (EJ416429).

McCaulley, M. H. (1985). The selection ratio type table: A research strategy for comparing type distributions. *Journal of Psychological Type*, *10*, 46-56.

McCrae R. R., & Costa, P. T. (1990). *Personality in adulthood*. New York: Guilford.

McCrae, R. R., & Costa, P. T. (1991). Adding Liebe und Arbeit: The full five-factor model and well-being. *Personality and Social Psychology Bulletin, 17*, 227-232. doi: 10.1177/014616729101700217

McCrae, R. R., & John, O. P. (1992). An introduction to the five-factor model and its applications. *Journal of Personality, 60*, 175-215.

McDaniel, B. L., & Grice, J. W. (2005). Measuring self-discrepancies on the Big Five personality traits with the repertory grid. *Personal Construct Theory & Practice, 2*, 18-31.

Medley,D., & Hill,R.(1973).*Measurement properties of observation schedule and record,form 4V*.[ERIC Reproduction Service No. ED 185 089].

Mehrdad, A. G., & Ahghar, M. (2012). Learning styles and learning strategies of left- handed EFL students. *Procedia-Social and Behavioral Sciences, 31*, 536-545.

Messick, K.S. (1976). *Individuality in learning.* San Francisco: Jossey Bass.

Messick, S. (1984). The nature of cognitive styles: Problems and promises in educational practice. *Educational Psychologist, 19,* 59–74. doi:10.1080/00461528409529283

Messick, S. (1994). The matter of style: Manifestations of personality in cognition, learning,and teaching. *Educational Psychologist.* 29,121–136. doi:10.1207/ s15326985ep2903_2

Messick, S. (1996). Bridging cognition and personality in education: The role of style in performance and development. *ETS Research Report Series*, 10: 353–376. doi: 10.1002/j.2333-8504.1996.tb01700.x

Miller, A. (1987). Cognitive styles, an integrated model. *Educational Psychology*, 7, 251- 268. doi:10.1080/0144341870070401

Miller, A. (1991). Personality types, learning styles and educational goals, *Educational Psychology*, *11*, 217-238. doi:10.1080/0144341910110302

Miller, B. M. (2006). *The impact of individual teaching styles on student academic achievement* (Doctoral dissertation, Marietta College).

Morrison, M., Sweeney, A., & Heffernan, T. (2003). Learning styles of on-campus and off-campus marketing students: The challenge for marketing educators. *Journal of Marketing Education*, *25*(3), 208-217.

Mosston, M. & Ashworth, S. (2002). *Teaching Physical Education* (*5th ed.*).San Francisco: Benjamin Cummings.

Mosston, M., & Ashworth, S. (2002). *Teaching physical education* (5th ed.). San Francisco: Benjamin Cummings.

Mount, M. K., & Barrick, M. R. (1995). The Big Five personality dimensions: Implications for research and practice in human resources management. *Research in Personnel and Human Resources Management*, *13*(3), 153-200.

Murphy, A., & Janeke, H. C. (2009). The relationship between thinking styles and emotional intelligence: an exploratory study. *South African Journal of Psychology*, *39*(3), 357- 375.

Myers, I. (1978). *Myers-Briggs Type Indicator*. Palo Alto, CA: Consulting Psychologists' Press).

Myers, I. B., & McCaulley, M. H. (1988). *Manual: A guide to the development and use of the Myers- Briggs type indicator*. Palo Alto, CA: Consulting Psychological Press.

Myers, I. B., McCaulley, M. H., & Most, R. (1985). *Manual, a guide to the development and use of the Myers-Briggs type indicator*. Consulting Psychologists Press.

Myers-Briggs, I. (1962). The Myers-Briggs type indicator manual. *Prinecton, NJ: Educational Testing Service*.

Naimie, Z., Siraj, S., Piaw, C. Y., Shagholi, R., & Abuzaid, R. A. (2010). Do you think your match is made in heaven? Teaching styles/learning styles match and mismatch revisited. *Procedia-Social and Behavioral Sciences*, *2*(2), 349-353.

Narlı, S., Özgen, K., & Alkan, H. (2011). In the context of multiple intelligences theory, intelligent data analysis of learning styles was based on rough set theory. *Learning and Individual Differences*, *21*(5), 613-618.

Nelson, J. G., & Ratzlaff, H. C. (1983). Arousal, Stimulation Seeking, and Teaching- Style Preference. *Canadian Journal of Education/Revue canadienne de l'education*, 274- 280.

Ngware, M. W., Mutisya, M., & Oketch, M. (2012). Patterns of teaching style and active teaching: do they differ across subjects in low and high performing primary schools in Kenya?. *London Review of Education*, *10*(1), 35-54.

Norman, W. T. (1967). *2,800 personality trait descriptors: Normative operating characteristics for a university population*. Department of Psychology, University of Michigan. ERIC(ED014738)

Northey, S.S. (2005). *Handbook on differentiated instruction for middle and high schools*. Larchmant, NY: Eye on Education Inc.

Nuby, J. F., & Oxford, R. L. (1996). Learning Style Preferences of Native American and African-American Secondary Students as Measured by the MBTI. *ERIC ED 406 422.*

Oflaz, M., & Turunc, T. (2012). The Effect of Learning Styles on Group Work Activities. *Procedia-Social and Behavioral Sciences*, *46*, 1333-1338.

O'Hagan, F. J., & Robertson, J. C. (1984). Primary School Children's Preferences Concerning Teachers and Teaching Methods. *School Psychology International*, *5*(2), 97-101.

O'Hagan, F. J., & Robertson, J. C. (1984). Primary School Children's Preferences Concerning Teachers and Teaching Methods. *School Psychology International*, *5*(2), 97-101.

O'Neil, J. (1990). Making sense of style. *Educational Leadership*, 48(2), 4-9. EJ416419

Opdenakker, M. C., & Van Damme, J. (2006). Teacher characteristics and teaching styles as effectiveness enhancing factors of classroom practice. *Teaching and teacher education, 22*(1), 1-21.

Orhun, F. B. (2009). Training & teaching style in accessing a desired classroom discipline at visual art courses. *Procedia-Social and Behavioral Sciences*, *1*(1), 692-696.

Oskay, Ö. Ö., Erdem, E., Akkoyunlu, B., & Yılmaz, A. (2010). Prospective chemistry teachers' learning styles and learning preferences. *Procedia-Social and Behavioral Sciences*, *2*(2), 1362-1367.

O'Sullivan, D. (1980). Teacher socialisation and teaching style in an Irish cultural context. *European Journal of Education*, 387-397.

Park, C. C. (2000). Learning style preferences of Southeast Asian students. *Urban Education*, *35*(3), 245-268.

Pask, G. & Scott, B.C.E. (1972). Learning strategies and individual competence. *International Journal of Man-Machine Studies, 4,* 217-253. doi:10.1016/S0020-7373(72)80004-X

Pask, G. (1976). Styles and strategies of learning. *British journal of educational psychology, 46*(2), 128-148. doi: 10.1111/j.2044-8279.1976.tb02305.x

Patterson, D. A. (2011). Impact of a multimedia laboratory manual: Investigating the influence of student learning styles on laboratory preparation and performance over one semester. *Education for chemical engineers*, *6*(1), e10-e30.

Pedrosa de Jesus, H. T., Albergaria Almeida, P., Joaquim Teixeira-Dias, J., & Watts, M. (2006). Students' questions: building a bridge between

Kolb's learning styles and approaches to learning. *Education+ Training*, *48*(2/3), 97-111.

Pithers, R. T., & Mason, M. (1992). Learning style preferences: Vocational students and teachers. *The Australian Educational Researcher*, *19*(2), 61-71. doi:10.1007/ BF03219512

Provitera, M. J., & Esendal, E. (2011). Learning and teaching styles in management education: Identifying, analyzing, and facilitating. *Journal of College Teaching & Learning (TLC)*, *5*(1).

Quiamzade, A., Mugny, G., & Falomir-Pichastor, J. M. (2009). Epistemic constraint and teaching style. *European journal of psychology of education*, *24*(2), 181-190.

Quirk,M.E.(1994). *How to learn and teach in medical school: A learner centered approach*. SringField,IL :Charles.C.Thomas.

Rahimi, M., & Asadollahi, F. (2012). On the relationship between Iranian EFL teachers' classroom management orientations and teaching style. *Procedia-Social and Behavioral Sciences*, *31*, 49-55.

Raina, M. K., & Vats, A. (1979). Creativity, teaching style and pupil control.*Gifted Child Quarterly*, *23*(4), 807-811.

Ramirez, A.I. & Castenada, A. (1974) *Cultural Democracy: bi-cognitive development and education.* New York: Academic Press.

Rassool, G. H., & Rawaf, S. (2008). The influence of learning styles preference of undergraduate nursing students on educational outcomes in substance use education. *Nurse education in practice*, *8*(5), 306-314.

Raven *et al* (1993) A comparison of learning styles, teaching styles, and personality styles of pre-service Montana and Ohio agriculture teachers, *Journal of Agricultural Education*

Rayner, S., & Riding, R. J. (1997). Towards a categorisation of cognitive styles and learning styles. *Educational Psychology, 17,* 5–27. doi:10.1080 /0144341970170101

Rayneri, L. J., Gerber, B. L., & Wiley, L. P. (2006). The relationship between classroom environment and the learning style preferences of gifted middle school students and the impact on levels of performance. *Gifted child quarterly*, *50*(2), 104-118.

Reed, P. A. (2000). The relationship between learning style and conventional or modular laboratory preference among technology education teachers in Virginia.

Reid, J. M. (1987). The learning style preferences of ESL students. *TESOL Quarterly*, *21*(1), 87-111. doi: 10.2307/3586356

Reid, J. M. (1987). The learning style preferences of ESL students. *TESOL quarterly*, *21*(1), 87-111.

Reiff, J. C. (1992). *Learning Styles: What Research Says to the Teacher*. Washington D.C. National Education Association. ED340506

Reinert, H. (1970). *The Edmonds learning style identification exercise.* Edmonds, WA: Edmonds School District.

Reinert, H. (1976). One Picture Is Worth a Thousand Words? Not Necessarily. *The Modern Language Journal*, *60*(4), 160-168.doi: 10.1111/j.1540-4781. 1976. tb00939.x

Renzulli, J. S., & Smith, L. H. (1978). *Learning Styles Inventory*. Creative Learning, Mansfield Center, CT.

Rezler, A. G., & Rezmovic, V. (1981). The Learning Preference Inventory. *Journal of Allied Health*, *10*(1), 28-34.

Richardson, T.R., Kring, J.P., & Davis, S.F. (1997). Student characteristics and learning or grade orientation influence preferred teaching style. *College Student Journal*, *31*, 347–355.

Riding, R. (1991). *Cognitive Style Analysis user manual.* Birmingham, UK: Learning and Training Technology.

Riding, R. (1997). On the nature of cognitive style. *Educ. Psychol.* 17(1 & 2): 29–49.

Riding, R. J. (2002). *School learning and cognitive style*. London: Fulton.

Riding, R. J., & Pearson, F. (1994). The relationship between cognitive style and intelligence. *Educational Psychology*, *14*(4), 413-425. doi:10.1080/ 0144341940140404

Riding, R. J., & Rayner, S. (1998). *Cognitive Styles and Learning Strategies: UnderstandingStyle Differences in Learning and Behavior*. London: David Fulton.

Riding, R., & Cheema, I. (1991). Cognitive styles—an overview and integration. *Educational Psychology*, *11*(3-4), 193-215. doi:10.1080/ 0144341910110301

Riding, R.J., & Rayner, S. (1998). *Learning Styles and Strategies*. London: David Fulton.

Riechmann, S. W., & Grasha, A. F. (1974). A rational approach to developing and assessing the construct validity of a student learning style scales

instrument. *The Journal of Psychology*, *87*(2), 213-223. doi:10.1080/00223980.1974.9915693

Rink, J.E. (2002). *Teaching physical education for learning* (4th ed.). Boston: McGraw Hill.

Ritschel-Trifilo, P. M. (2009). *The effect of following learning style pathways on learning and satisfaction in online biology laboratories for non-science-major undergraduates* (Doctoral dissertation, Capella University).

Robinson,R. (1986). Geography Teachers reflections on their teaching about development. *Journal of Curriculum Studies*, *18*(4),409-427. doi:10.1080/ 0022027860180405

Roccas, S., Sagiv, L., Schwartz, S. H., & Knafo, A. (2002). The big five personality factors and personal values. *Personality and Social Psychology Bulletin*, *28*(6), 789-801. doi: 10.1177/0146167202289008

Roccas, S., Sagiv, L., Schwartz, S. H., & Knafo, A. (2002). The big five personality factors and personal values. *Personality and social psychology bulletin*, *28*(6), 789-801.

Sadker & Sadker.(1991). *Teachers, Schools and Society,* McGraw Hill, Inc, New York**.**

Sadler-Smith, E., & Tsang, F. (1998). A comparative study of approaches to studying in Hong Kong and the United Kingdom. *British Journal of Educational Psychology*, *68*(1), 81-93. doi: 10.1111/j.2044-8279.1998.tb01276.x

Sadler-Smith, E., Allinson, C. W., & Hayes, J. (2000). Learning Preferences and Cognitive Style Some Implications for Continuing Professional Development. *Management Learning*, *31*(2), 239-256.

Sahin, S. (2008). The Relationship between Student Characteristics, Including Learning Styles, and Their Perceptions and Satisfaction in Web-Based Courses in Higher Education. *Online Submission*, *9*(1), 123-138.

Salvara, M. I., Jess, M., Abbott, A., & Bognár, J. (2006). A preliminary study to investigate the influence of different teaching styles on pupils' goal orientations in physical education. *European Physical Education Review*, *12*(1), 51-74.

Samadzadeh, M., Abbasi, M., & Shahbazzadegan, B. (2011). Survey of relationship between psychological hardiness, thinking styles and social skills with high school student's academic progress in Arak city. *Procedia-Social and Behavioral Sciences*, *28*, 286- 292.

Sasidharan,P,(2007). Manual of Calicut university personality inventory, Unpublished report, Department of Psychology, University of Calicut.

Sayer, K., & Studd, R. (2006). Matching learning style preferences with suitable delivery methods on textile design programmes. *International Journal of Technology and Design Education*, *16*(2), 163-176.

Schmeck, R. R. (1983). Learning style of college students. In R. F. Dillon, & R.R. Schmeck (Eds.), *Individual Differences in Cognition(pp. 233–279)*: Vol. 1. New York: Academic,.

Schmeck, R. R. E. (1988). *Learning strategies and learning styles*. New York: Plenum Press.

Schmeck, R. R., Ribich, F. D., & Ramanaiah, N. (1977). Development of a self-report inventory for assessing individual differences in learning processes. *Applied Psychological Measurement, 1(3),* 413-431. doi: 10.1177/014662167700100310

Schmitt, D. P., Allik, J., McCrae, R. R., & Benet-Martínez, V. (2007). The geographic distribution of Big Five personality traits patterns and profiles of human self- description across 56 nations. *Journal of cross-cultural psychology, 38*(2), 173- 212.

Schwartz, G., Merten, D., & Bursik Jr, R. J. (1987). Teaching styles and performance values in junior high school: The impersonal, nonpersonal, and personal. *American Journal of Education,* 346-370.

Seevers, B. S., & Clark, R. W. (1993). Factors related to teaching style preference of Ohio Cooperative Extension Service faculty and program staff. *Summary of Research, 68,* 1-13.

Sen, S., & Yilmaz, A. (2012). The Effect of Learning Styles on Student's Misconceptions and Selfefficacy for Learning and Performance. *Procedia-Social and Behavioral Sciences, 46,* 1482-1486.

Sharpe, J. P., Martin, N. R., & Roth, K. A. (2011). Optimism and the B Zhang, L. F. (2008). Revisiting the big six and the big five among Hong Kong university students. *Educational Psychology, 28*(1), 1-14.

Sharpe, J. P., Martin, N. R., & Roth, K. A. (2011). Optimism and the Big Five factors of personality: Beyond neuroticism and extraversion. *Personality and Individual Differences, 51*(8), 946-951.

Shatalebi, B., Sharifi, S., Saeedian, N., & Javadi, H. (2012). Examining the relationship between emotional intelligence and learning styles. *Procedia-Social and Behavioral Sciences, 31,* 95-99.

Shaver, P. R., & Brennan, K. A. (1992). Attachment styles and the" Big Five" personality traits: Their connections with each other and with romantic relationship outcomes. *Personality and Social Psychology Bulletin*, *18*(5), 536-545.

Shreves, S. C. (1998). *Teaching Philosophy*. [On-line]. Available: http://curry. edschool.virginia.edu/curry/class/edlf/589-07/Carter_Shreves /philosophy.html

Simmons, P. E., Emory, A., Carter, T., Coker, T., Finnegan, B., Crockett, D. & Labuda, K. (1999). Beginning teachers: Beliefs and classroom actions. *Journal of Research in Science Teaching*, *36*(8), 930-954. doi: 10.1002/(SICI)1098

Sirmaci, N. (2010). The relationship between the attitudes towards mathematics and learning styles. *Procedia-Social and Behavioral Sciences*, *9*, 644-648.

Slaats, A., Lodewijks, H. G., & van der Sanden, J. M. (1999). Learning styles in secondary vocational education: disciplinary differences. *Learning and instruction*, *9*(5), 475-492.

Smith, L. H., & Renzulli, J. S. (1984). Learning style preferences: A practical approach for classroom teachers. *Theory into Practice*, *23*(1), 44-50. doi:10.1080/ 00405848409543088

Smith,W.C. (1997). *A review of the research into teaching styles/behaviours' impct on students' contitive outcomes and Blooms taxonomy*.[ERIC Document Reproduction Service ED408 310].

Soar, R. S. (1969). Optimum Teacher—Pupil Interaction for Pupil Growth. *Classroom Interaction Newsletter*, 38-45. http://www. jstor.org/stable/23869472

Sofo, F. (2005). Thinking styles of modern Chinese leaders: independence and exploration in an historically conditional China. *Australian Journal of Adult Learning, 45*(3), 304.

Sternberg, R. J. (1985). *Beyond IQ: A triarchic theory of human intelligence*. New York: Cambridge University Press.

Sternberg, R. J. (1988). Mental self-government: A theory of intellectual styles and their development. *Human Development, 31*(4), 197-224. doi:10.1159/000275810

Sternberg, R. J. (1988b). T*he Triarchic Mind: A New Theory of Human Intelligence.* New York: Viking.

Sternberg, R. J. (1990). Thinking styles: Keys to understanding student performance. P*hi Delta Kappan, 71(*5), 366-371. http://www.jstor.org/stable/20404156

Sternberg, R. J. (1993). Intellectual styles: theory and classroom implications. In B. Z. Pressesen (Ed.), L*earning and Thinking Styles: Classroom Interaction* (pp. 8-42). Washington, DC: National Education Association of the United States,Research for Better Schools.

Sternberg, R. J. (1994). Allowing for Thinking Styles. *Educational Leadership*, *52*(3), 36-40. ERIC(ED 492910).

Sternberg, R. J. (1994). Thinking styles: Theory and assessment at the interface between intelligence and personality. In Sternberg, R. J., & Ruzgis, P. (Eds.), *Intelligence and Personality* (pp. 169–187). New York: Cambridge University Press.

Sternberg, R. J. (1997). *Thinking Styles*. New York: Cambridge University Press.

Sternberg, R. J. (Ed.). (2000). *Handbook of intelligence.* New York: Cambridge University Press.

Sternberg, R. J., & Grigorenko, E. L. (1995). Styles of thinking in school. *European Journal of High Ability*, *6*(2), 201-219. doi:10.1080/0937445940060211

Sternberg, R. J., & Grigorenko, E. L. (1997). Are cognitive styles still in style? A*merican Psychologist, 52(*7), 700-712. http://dx.doi.org/10.1037/0003-066X.52.7.700

Sternberg, R. J., & Grigorenko, E. L. (2001). A capsule history of theory and research on styles. In R. J. Sternberg, & L. F. Zhang (Eds.), P*erceptives on Thinking, Learning, and Cognitive Styles.* Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Sternberg, R. J., & Lubart, T. I. (1991a). Creating creative minds. P*hi Delta Kappan, 72*, 608-614. http://www.jstor.org/stable/20404480

Sternberg, R. J., & Lubart, T. I. (1991b). An investment theory of creativity and its development. H*uman Development, 34*(1), 1-31. doi:10.1159/000277029

Sternberg, R. J., & Wagner, R. K. (1992). T*hinking Styles Inventory:* Unpublished test. New Haven, CT: Yale University.

Sternberg, R. J., & Zhang, L. F. (2005). Styles of thinking as a basis of differentiated instruction. *Theory into Practice, 44*(3), 245-253.

Sternberg, R. J., & Zhang, L. F. (Eds.). (2001). *Perspectives on thinking, learning, and cognitive styles.* Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Sternberg, R. J., and Grigorenko, E. L. (1997). Are cognitive styles still in style? *American Psychologist*, 52(7): 700–712. http://dx.doi.org/10.1037/0003-066X.52.7.700

Sternberg, R. J., and Wagner, R. K. (1992). *Thinking Styles Inventory*, Unpublished test, Yale University, New Haven, U.S.A.

Sternberg, R. J., Grigorenko, E. L., & Zhang, L. F. (2008). Styles of learning and thinking matter in instruction and assessment. *Perspectives on Psychological Science*, *3*(6), 486-506.

Sternberg, R. J., The Rainbow Project Collaborators, & University of Michigan Business School Project Collaborators. (2004). Theory based university admissions testing for a new millennium. *Educational Psychologist, 39*(3), 185–198. doi:10.1207/ s15326985ep3903_4

Sternberg, R. J., Wagner, R. K., & Zhang, L. F. (2003). *Thinking Styles Inventory—Revised.* Unpublished test, Yale University, New Haven, CT.

Sternberg, R.J. (1985). *Beyond IQ: A triarchic theory of human intelligence.* New York: Cambridge University Press.

Sternberg, R.J. (1988). Mental self-government: A theory of intellectual styles and their development. *Human Development*, *31*(4), 197–224. doi:10.1159/000275810

Sternberg, R.J. (1997). *Thinking styles.* New York: Cambridge University Press.

Sternberg,R.J., & Lubart, T.I.(1995*). Defying the crowd: Cultivating creativity in a culture of conformity*. New York: Free Press.

Stitt-Gohdes, W. L. (2001). Business education students' preferred learning styles and their teachers' preferred instructional styles: Do they match? *Delta Pi Epsilon Journal, 43*(3), 137-151. ERIC (EJ638597)

Suls, J., Martin, R., & David, J. P. (1998). Person-environment fit and its limits: Agreeableness, neuroticism, and emotional reactivity to interpersonal conflict. *Personality and Social Psychology Bulletin*, *24*(1), 88-98.

Tamir, P., & Cohen, S. (1980). Factors that correlate with cognitive preferences of medical school teachers. *The Journal of Educational Research*, *74*(2), 69-74. doi:10.1080/00220671.1980.10885285

Teichman, J. R., & Contreras-Grau, J. M. (2006). Acculturation and teaching styles among young mainland Puerto Rican mothers. *Hispanic Journal of Behavioral Sciences*, *28*(1), 84-101.

Tennant, M. (1988). *Psychology and adult learning.* London: Routledge

Torrance, E. P. (1988). *Style of Learning and Thinking: Administrator's Manual*. Scholastic Testing Service, Bensenville, IL.

Torrance, E. P., & Reynolds, C. R. (1978). Images of the future of gifted adolescents: Effects of alienation and specialized cerebral functioning. *Gifted Child Quarterly*, 22, 40–54.

Torrance, E. P., McCarthy, B., & Kolesinski, M. T. (1988). *Style of Learning and Thinking*. Scholastic Testing Service, Bensenville, IL.

Torrance, E. P., Reigel, T., Reynolds, C. R., & Ball, O. (1976). *Preliminary Manual: Your Style of Learning and Thinking*. Department of Educational Psychology, University of Georgia, Athens, GA.

Trowbridge, L. W. & Bybee, R. W. (1996). *Teaching Secondary School Science.* Englewood Cliffs, NJ: Prentice Hall.

Tucker, R. W. (1999). *An examination of accounting students' thinking styles*. (Doctoral dissertation, University of Idaho). *Sci. Eng.* 60(6B): 2977.

Tuckman, B. W., & Fabian, M. S. (1977). Teaching Styles of Vocational Teachers Judged as More and Less Competent. *The Journal of Experimental Educational*, 5-10.

Tuckman,B.W. (1970). A technique for the assessment of teacher directness. *The Journal of Educational Research, 63*(9), 395-400.

Tulbure, C. (2011). Do different learning styles require differentiated teaching strategies? *Procedia-Social and Behavioral Sciences, 11*, 155-159.

Tulbure, C. (2012). Learning styles, teaching strategies and academic achievement in higher education: A cross-sectional investigation. *Procedia-Social and Behavioral Sciences,33*, 398-402.

Turki, J. (2012). Thinking styles" In Light of Sternberg's Theory" prevailing among the students of Tafila Technical University and its relationship with some variables. *American International Journal of Contemporary Research*, *2*(3), 140-152.

Van der Aa, N., Overbeek, G., Engels, R. C., Scholte, R. H., Meerkerk, G. J., & Van den Eijnden, R. J. (2009). Daily and compulsive internet use and well-being in adolescence: a diathesis-stress model based on big five personality traits. *Journal of Youth and Adolescence*, *38*(6), 765-776.

Van Klaveren, C. (2011). Lecturing style teaching and student performance. *Economics of Education Review*, *30*(4), 729-739.

Vargas, M., & Busch-Rossnagel, N. A. (2003). Teaching behaviors and styles of low- income Puerto Rican mothers. *Applied Developmental Science*, *7*(4), 229-238.

Vaughn, L. M., & Baker, R. C. (2008). Do different pairings of teaching styles and learning styles make a difference? Preceptor and resident perceptions. *Teaching and Learning in Medicine, 20*(3), 239-247.

Vengopal, K., & Mridula, K. (2007). Styles of learning and thinking. *Journal of the Indian Academy of Applied Psychology, 33*(1), 111-118.

Vermunt, J. (2005). Relations between student learning patterns and personal and contextual factors and academic performance. *Higher Education, 49*(3), 205–234. doi:10.1007/s10734-004-6664-2

Vermunt, J. D. H. M. (1992). *Learning Styles and Guidance for Learning Processes in Higher Education*. Arterdam: Lisse Swets and Zeitlinger.

Vernon, M. D. (1963). *The Psychology of Perception.* Harmondsworth: Penguin Books.

Vernon, P. E. (1973). Multivariate approaches to the study of cognitive styles. In J.R. Royce (Ed.), *Multivariate Analysis and Psychological Theory (pp. 125-148).* London: Academic Press.

Villegas, A. M., & Lucas, T. (2002). *Educating culturally responsive teachers: A coherent approach*. Suny Press.

Visser, S., McChlery, S., & Vreken, N. (2006). Teaching styles versus learning styles in the accounting sciences in the United Kingdom and South Africa: a comparative analysis. *Meditari Accountancy Research, 14*(2), 97-112.

Wahl, K., Ertle, A., Bohne, A., Zurowski, B., & Kordon, A. (2011). Relations between a ruminative thinking style and obsessive–compulsive symptoms in non-clinical samples. *Anxiety, Stress, & Coping, 24*(2), 217-225.

Walters, G. D., & McCoy, K. (2007). Taxometric analysis of the Psychological Inventory of Criminal Thinking Styles in incarcerated offenders and college students. *Criminal Justice and Behavior, 34*(6), 781-793.

Watson, J. M. (2012). Educating the Disagreeable Extravert: Narcissism, the Big Five Personality Traits, and Achievement Goal Orientation. *International Journal of Teaching and Learning in Higher Education, 24*(1), 76-88.

Weil, M. & Murphy, J. (1982). Instruction processes. In *Encyclopedia of Educational Research* (5th ed) 7111A. American Council on Education.

Weinberg, M. (1983). *The Search for Quality Integrated Education: Policy and Research on Minority Students in School and College. Contributions to the Study of Education, Number 7*. Greenwood Press, 88 Post Road West, Box 5007, Westport, CT 06881. ED252625

Weng, C.Y. (2002). The relationship between learning style preferences and teaching style preferences in college students. *Dissertation Abstracts International (Section A): Humanities and Social Sciences, 62*(9A), 2966.

Wetzel, J. N., Potter, W. J., & O'Toole, D. M. (1982). The influence of learning and teaching styles on student attitudes and achievement in

the introductory economics course: A case study. *The Journal of Economic Education, 13*(1), 33-39.

Wispe, L. G. (1951). Evaluating section teaching methods in the introductory course. *The Journal of Educational Research*, *45*(3), 161-186. doi:10.1080 /00220671. 1951.10881934

Witkin , H. A ., & Goodenough, D. R. (1981). *Cognitive Styles: Essence and origins-Field dependence and field independence*. New York : International Universities Press.

Witkin, H. A., & Asch, S. E. (1948a). Studies in space orientation. III. Perception of the upright in the absence of a visual field. *Journal of Experimental Psychology*, *38*(5), 603-614. http://dx.doi.org/10.1037/h0055372

Witkin, H. A., Dyk, R. B., Faterson, H. F., Goodenough, D. R., & Karp, S. A. (1962). *Psychological Differentiation*. New York: Wiley.

Witkin, H. A., Moore, C. A., Goodenough, D. R., & Cox, P. W. (1975). Field-dependent and field-independent cognitive styles and their educational implications. *ETS Research Bulletin Series*, *1975*(2), 1-64. doi: 10.1002/j.2333-8504.1975.tb01065.x

Witkin, H. A., Oltman, P. K., Raskin, E., & Karp, S. A. (1971). *Embedded figures test, children's embedded figures test, group embedded figures test: Manual.* Palo Alto, CA: Consulting Psychologists Press.

Witkin, H.A. (1964). Origins of cognitive style. In C. Sheerer (Ed.), *Cognition, theory, research, promise.* New York: Harper and Row.

Witkin, H.A., & Goodenough, D. (1981). *Cognitive Styles, essence and origins: field dependence and field independence.* New York: International Universities Press.

Witkin, H.A., Dyk, R.B., Faterson, H.F., Goodenough, D.R. & Karp, S.A. (1962) *Psychological Differentiation*. New York: Wiley.

Witkin, H.A., Oltman, P., Raskin, E. & Karp, S. (1971). *A Manual for Embedded Figures Test.* Palo Alto, CA: Consulting Psychologists Press.

Witkin,H.A. (1962). *Psychological differentiation: Studies of development*. New York: Wiley.

Woods, D. R. (1995). Teaching and learning: what can research tell us? *Journal of College of Science Teaching, 25,* 229-232.

Wubbels, T., & Levy, J. (1991). A comparison of interpersonal behavior of Dutch and American teachers. *International Journal of Intercultural Relations,15*(1), 1-18. doi:10.1016/0147-1767(91)90070-W

Xiao, L., & Tianjin, P. R. (2006). Bridging the gap between teaching styles and learning styles: A cross cultural perspective. *TESL-EJ*, *10*(3), 1-15.

Yenice, N., & Aktamış, H. (2010). Determination of multiple intelligence domains and learning styles of the teacher candidates. *Procedia-Social and Behavioral Sciences*, *2*(2), 3274-3281.

Yildirim, O., Acar, A. C., Bull, S., & Sevinc, L. (2008). Relationships between teachers' perceived leadership style, students' learning style, and academic achievement: A study on high school students. *Educational Psychology*, *28*(1), 73-81.

You, Z., & Jia, F. (2008). Do they learn differently? An investigation of the pre-service teachers from US and China. *Teaching and Teacher education, 24*(4), 836-845.

Yu, T. M., & Chen, C. (2012). Thinking styles and preferred teacher interpersonal behavior among Hong Kong students. *Learning and Individual Differences*, *22*(4), 554-559.

Zanich, M.L. (1991). *Learning styles/teaching styles*. Unpublished manuscript, Indiana University of Pennsylvania, Teaching Excellence Center, Indiana.

Zhang, L. F. (1999a). Further cross-cultural validation of the theory of mental self-government. *The Journal of Psychology*, *133*(2), 165-181. doi:10.1080/ 0022398 9909599731

Zhang, L. F. (1999b). *Short-Version Self-Directed Search*, Unpublished test, The University of Hong Kong.

Zhang, L. F. (2000). Are thinking styles and personality types related?. *Educational psychology*, *20*(3), 271-283.

Zhang, L. F. (2000). Relationship between thinking styles inventory and study process questionnaire. *Personality and Individual differences*, *29*(5), 841-856.

Zhang, L. F. (2000a). Relationship between thinking styles inventory and study process questionnaire. *Personality and Individual Differences*, *29*(5), 841-856. doi:10.1016/S0191-8869(99)00236-6

Zhang, L. F. (2000b). Are thinking styles and personality types related? *Educational Psychology*, *20*(3), 271-283. doi:10.1080/713663742

Zhang, L. F. (2001). Do styles of thinking matter among Hong Kong secondary school students?. *Personality and Individual Differences*, *31*(3), 289-301.

Zhang, L. F. (2001a). Thinking styles, self-esteem, and extracurricular experiences. *International Journal of Psychology*, *36*(2), 100-107. doi:10.1080/ 00207590042000128

Zhang, L. F. (2001b). Thinking styles and personality types revisited. *Personality and Individual Differences*, *31*(6), 883-894. doi:10.1016/S0191-8869(00)00189-6

Zhang, L. F. (2002). Thinking styles: Their relationships with modes of thinking and academic performance. *Educational Psychology*, *22*(3), 331-348.

Zhang, L. F. (2002a). Thinking styles and cognitive development. *The Journal of Genetic Psychology*, *163*(2), 179-195. doi:10.1080/00221320209598676

Zhang, L. F. (2002b). Measuring thinking styles in addition to measuring personality traits? *Personality and Individual Differences*, *33*(3), 445-458. doi:10.1016/S0191-8869(01)00166-0

Zhang, L. F. (2002c). Thinking styles and the big five personality traits. *Educational Psychology*, *22*(1), 17-31. doi:10.1080/01443410120101224

Zhang, L. F. (2002d). The role of thinking styles in psychosocial development. *Journal of College Student Development*, *43*(5), 696-711. http://hdl.handle.net/10722/85076

Zhang, L. F. (2002e). Thinking styles and modes of thinking: Implications for education and research. *The Journal of psychology*, *136*(3), 245-261. doi:10.1080/ 00223980209604153

Zhang, L. F. (2002f). Thinking styles: Their relationships with modes of thinking and academic performance. *Educational Psychology*, *22*(3), 331-348. doi:10.1080 /01443410220138557

Zhang, L. F. (2003). Contributions of thinking styles to critical thinking dispositions. *The Journal of Psychology*, *137*(6), 517-544. doi:10.1080/00223980309600633

Zhang, L. F. (2003). Does the big five predict learning approaches?. *Personality and individual differences*, *34*(8), 1431-1446.

Zhang, L. F. (2004). Do university students' thinking styles matter in their preferred teaching approaches?. *Personality and individual differences*, *37*(8), 1551-1564.

Zhang, L. F. (2004). Field-dependence/independence: cognitive style or perceptual ability?–validating against thinking styles and academic achievement. *Personality and Individual Differences*, *37*(6), 1295-1311.

Zhang, L. F. (2004). Revisiting the predictive power of thinking styles for academic performance. *The Journal of Psychology*, *138*(4), 351-370.

Zhang, L. F. (2005). Does teaching for a balanced use of thinking styles enhance students 'achievement?. *Personality and individual differences*, *38*(5), 1135- 1147.

Zhang, L. F. (2006). Does student–teacher thinking style match/mismatch matter in students' achievement?. *Educational Psychology*, *26*(3), 395-409.

Zhang, L. F. (2006). Preferred teaching styles and modes of thinking among university students in mainland China. *Thinking Skills and Creativity*, *1*(2), 95-107.

Zhang, L. F. (2006). Thinking styles and the big five personality traits revisited. *Personality and Individual Differences*, *40*(6), 1177-1187.

Zhang, L. F. (2007). Do personality traits make a difference in teaching styles among Chinese high school teachers?. *Personality and individual differences*, *43*(4), 669- 679.

Zhang, L. F. (2007). From career personality types to preferences for teachers' teaching styles: A new perspective on style match. *Personality and Individual Differences*, *43*(7), 1863-1874.

Zhang, L. F. (2007). Revisiting thinking styles' contributions to the knowledge and use of and attitudes towards computing and information technology. *Learning and Individual Differences*, *17*(1), 17-24.

Zhang, L. F. (2007). Teaching styles and occupational stress among Chinese university faculty members. *Educational Psychology*, *27*(6), 823-841.

Zhang, L. F. (2008). Preferences for teaching styles matter in academic achievement: Scientific and practical implications. *Educational Psychology*, *28*(6), 615-625.

Zhang, L. F. (2008). Revisiting the big six and the big five among Hong Kong university students. *Educational Psychology*, *28*(1), 1-14.

Zhang, L. F. (2009). Anxiety and thinking styles. *Personality and Individual Differences, 47*(4), 347-351.

Zhang, L. F. (2009). From conceptions of effective teachers to styles of teaching: Implications for higher education. *Learning and individual differences, 19*(1), 113- 118.

Zhang, L. F. (2010). Further investigating thinking styles and psychosocial development in the Chinese higher education context. *Learning and Individual Differences, 20*(6), 593-603.

Zhang, L. F. (2011). Teaching styles and conceptions of effective teachers: Tibetan and Han Chinese academics compared. *Learning and Individual Differences, 21*(5), 619-623.

Zhang, L. F. (2013). Psychosocial development and the big five personality traits among Chinese university students. *Learning and Individual Differences, 23*, 163-167.

Zhang, L. F., & Higgins, P. (2008). The predictive power of socialization variables for thinking styles among adults in the workplace. *Learning and Individual Differences, 18*(1), 11-18.

Zhang, L. F., & Huang, J. (2001). Thinking styles and the five factor model of personality. *European Journal of Personality, 15*(6), 465-476.

Zhang, L. F., & Postiglione, G. A. (2001). Thinking styles, self-esteem, and socio-economic status. *Personality and Individual Differences, 31*(8), 1333-1346. doi:10.1016/S0191-8869(00)00227-0

Zhang, L. F., & Sachs, J. (1997). Assessing thinking styles in the theory of mental self-government: A Hong Kong validity study. *Psychological Reports, 81*(3), 915-928.

Zhang, L. F., & Sternberg, R. J. (2000). Are learning approaches and thinking styles related? A study in two Chinese populations. Jo*urnal of Psychology, 134(5*), 469-489. doi:10.1080/00223980009598230

Zhang, L. F., & Sternberg, R. J. (2001). Thinking styles across cultures: Their relationship with student learning. In R. J. Sternberg & L. F. Zhang (Eds.), *Perspectives on thinking, learning, and cognitive styles* (pp. 197–226). London: Lawrence Erlbaum Associates.

Zhang, L. F., & Sternberg, R. J. (2002). Thinking styles and teachers' characteristics. *International Journal of Psychology, 37*(1), 3–12. doi: 10.1080 /002075 90143 000171

Zhang, L. F., & Sternberg, R. J. (2005). A threefold model of intellectual styles. *Educational Psychology Review, 17* (1), 1–53. doi:10.1007/s10648-005-1635-4

Zhang, L. F., & Sternberg, R. J. (2006). *The nature of intellectual styles.* Mahwah, NJ: Lawrence Erlbaum.

Zhang, L. F., Huang, J., & Zhang, L. (2005). Preferences in teaching styles among Hong Kong and US university students. *Personality and Individual Differences*, *39*(7), 1319-1331.

Zhou, L., & Fan, Z. Z. (2007). Discrepancy Between Native English Speaker Teachers' Teaching Styles and Chinese English Learners' Learning Styles. *Online Submission, 4*(9), 15-20.

APPENDICES

Appendix A1
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TEACHING STYLE INVENTORY MALAYALAM [DRAFT]

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പേര് :

കോളേജിന്റെ പേര് :

വിഷയം :

വിദ്യാഭ്യാസ യോഗ്യത : ഡിഗ്രി ☐ പി.ജി. ☐ മറ്റുള്ളവ ☐

ലിംഗം : ആൺ / പെൺ

വയസ്സ് : 20-25 ☐ 25-30 ☐ 30-ന് മുകളിൽ ☐

അധ്യാപകവൃത്തിയുമായി ബന്ധപ്പെട്ട ചില സാഹചര്യങ്ങളോട്/ പ്രവർത്തികളോട് നിങ്ങളെങ്ങനെ പ്രതികരിക്കുന്നു എന്നതിനെ സംബന്ധിച്ച ഒരു കൂട്ടം പ്രസ്താവനകളാണ് താഴെ കൊടുത്തിരിക്കുന്നത്. ഓരോ സാഹചര്യത്തിനും/ പ്രവർത്തിക്കും സാധ്യമായ അഞ്ച് പ്രതികരണങ്ങൾ നൽകിയിട്ടു ്. ഇതിൽ നിങ്ങൾക്ക് ഏറ്റവും അനുയോജ്യമെന്ന് തോന്നുന്ന പ്രതികരണത്തിന് ഒന്ന് (1) എന്നും ര ാമതായി ഏറ്റവും അനുയോജ്യമായ പ്രതികരണത്തിന് ര ് (2) എന്നും, തുടർന്ന് മൂന്ന് (3) നാല് (4) എന്നും ഏറ്റവും അനുയോജ്യമല്ലാത്ത പ്രതികരണത്തിന് അഞ്ച് (5) എന്നും അതത് പ്രതികരണത്തിന് നേരെയുള്ള ബോക്സിലെഴുതാം.

1. എന്നെ സംബന്ധിച്ച് വിദ്യാർത്ഥിയുടെ ഏറ്റവും നല്ലഗുണം.

a.	വിഷയാവഗാഹം നേടണം.	
b.	നിലവിലുള്ള നിയമങ്ങളും മാനദണ്ഡങ്ങളും അനുസരിക്കണം.	
c.	എന്റെ സമീപനങ്ങളും രീതികളും അനുകരിക്കണം.	
d.	എന്റെ സഹായത്താൽ സ്വയം പഠിക്കണം.	
e.	ഉത്തരവാദിത്തബോധമുള്ളവരാകണം.	

2. വിദ്യാർത്ഥികളുടെ ഉത്തരവാദിത്തം.

a.	വസ്തുതകളും ഉള്ളടക്കങ്ങളും ആശയങ്ങളും സ്വന്തമാക്കൽ.	
b.	ചിട്ടയായ പ്രവർത്തനത്തിലൂടെ ലക്ഷ്യങ്ങൾ നേടാൻ പരിശ്രമിക്കൽ.	
c.	നല്ല പഠനരീതികൾ മാതൃകയാക്കൽ.	
d.	വ്യക്തിനിഷ്ഠമായി വൈവിധ്യമാർന്ന പഠനശൈലികൾ ഉൾക്കൊള്ളൽ.	
e.	പഠന ഉത്തരവാദിത്തം സ്വയം ഏറ്റെടുക്കൽ.	

3. ക്ലാസ് റൂമിലെ ആശയവിനിമയത്തിൽ എന്റെ ഊന്നൽ

a.	വിഷയം വിശദമായി പ്രതിപാദിക്കുന്നതിന്	
b.	അവശ്യമായ ആശയങ്ങൾ പ്രകടിപ്പിക്കുന്നതിന്	
c.	ഉദാഹരണങ്ങൾ നൽകിയുള്ള വിശദീകരണത്തിന്	
d.	വിദ്യാർത്ഥികളിലെ വ്യക്തിനിഷ്ഠത ഉൾകൊളളുന്നതിന്	
e.	അധ്യാപകന്റെ ഇടപെടൽ പരമാവധി കുറയ്ക്കുന്നതിന്	

4. അധ്യാപനരീതിയിൽ എന്റെ ഊന്നൽ

a.	വിഷയ കേന്ദ്രീകൃതം.	
b.	പാഠ്യപദ്ധതി കേന്ദ്രീകൃതം.	
c.	ജീവിത കേന്ദ്രീകൃതം.	
d.	വിദ്യാർത്ഥി കേന്ദ്രീകൃതം.	
e.	പ്രവർത്തി കേന്ദ്രീകൃതം.	

5. പഠനം ലക്ഷ്യമാക്കേ ത്

a.	വിഷയാനുബന്ധ വൈദഗ്ധ്യം.	
b.	ചിട്ടപ്പെടുത്തിയ അറിവ്	
c.	ആത്മസാക്ഷാത്ക്കാരം.	
d.	ബഹുമുഖ വികാസം.	
e.	സ്വയാർജ്ജിത അനുഭവസമ്പത്ത്.	

6. ഞാൻ പാഠപുസ്തകം ഉപയോഗിക്കുന്നത്

a.	പഠനത്തിന്റെ ആമുഖം മാത്രമായാണ്.	
b.	അവശ്യം വേ ഉള്ളടക്കമായാണ്.	
c.	ജീവിതവുമായി ബന്ധപ്പെടുത്തിയാണ്.	
d.	വിവിധ പ്രവർത്തനങ്ങൾ കുട്ടികളെ ബോധ്യപ്പെടുത്താനാണ്.	
e.	വിവിധ പ്രവർത്തനങ്ങൾക്ക് മാതൃകയാക്കി കുട്ടികളെ പ്രോത്സാഹിപ്പിക്കാനാണ്.	

7. സമയ ക്രമീകരണം

a.	തെറ്റിയാലും പാഠഭാഗങ്ങൾ വിശദീകരിക്കേ താണ്.	
b.	കൃത്യമായി പാലിക്കേ താണ്.	
c.	മറികടന്നും വിദ്യാർത്ഥിബന്ധം സൂക്ഷിക്കേ താണ്.	
d.	പാലിക്കാൻ വേ തന്ത്രങ്ങൾ വിദ്യാർത്ഥികൾക്ക് കാണിച്ച് കൊടുക്കേ താണ്.	
e.	വിദ്യാർത്ഥികൾ സ്വയം നടത്തേ താണ്.	

8. ഞാൻ ചോദ്യങ്ങൾ ചോദിക്കുന്നത്

a.	കുട്ടികളിലെ വിഷയാവഗാഹം വിലയിരുത്താനാണ്.	
b.	ബോധനോദ്ദേശങ്ങളുടെ നേട്ടം വിലയിരുത്താനാണ്.	
c.	വിഷയത്തെ വ്യക്തി ജീവിതവുമായി ബന്ധപ്പെടുത്താനാണ്.	
d.	പഠനപ്രവർത്തനങ്ങളെ സഹായിക്കാനാണ്.	
e.	അപൂർവ്വമായാണ്.	

9 പഠന പ്രോജക്ട് നൽകുന്നത്

a.	വൈജ്ഞാനികഭിവൃദ്ധിക്കാണ്.	
b.	വ്യക്തമായ രൂപരേഖയെ അടിസ്ഥാനമാക്കിയാണ്.	
c.	ജീവിത നൈപുണികളേയും, മൂല്യങ്ങളേയും പരിപോഷിപ്പിക്കാനാണ്.	
d.	വിഷയാനുബന്ധ നൈപുണികൾ ആർജിക്കാനാണ്.	
e.	വിദ്യാർത്ഥിക്കൾക്കനുഗുണമായി രൂപകല്പന ചെയ്യാൻ സ്വാതന്ത്ര്യം നൽകുന്ന രീതിയിലാണ്.	

10 പഠനാസൂത്രണരേഖ (Lesson Plan) പ്രാധാന്യം നൽകേ ത്.

a.	ഏറ്റവും പുതിയ വിവരങ്ങൾ	
b.	നിശ്ചിത പഠനോദ്ദേശങ്ങൾ	
c.	വ്യക്തിജീവിതത്തിലെ അനുഭവങ്ങളെ അവലംബിക്കൽ.	
d.	വിദ്യാർത്ഥി കേന്ദ്രീകൃതമാക്കൽ.	
e.	സ്വതന്ത്രചിന്തയെ പരിപോഷിപ്പിക്കൽ.	

11 എന്റെ അഭിപ്രായത്തിൽ ക്ലാസ്റൂം മാനേജ്മെന്റ് ഊന്നൽ നൽകേ ത് വിദ്യാർത്ഥികളുടെ/വിദ്യാർത്ഥികൾക്ക്

a.	ചിന്തയെ ഉദ്ദീപിപ്പിക്കുന്ന അന്തരീക്ഷം	
b.	നിയതമായ ലക്ഷ്യപ്രാപ്തി.	
c.	അനുഭവങ്ങളെ വിശകലനം ചെയ്യുന്ന അന്തരീക്ഷം.	
d.	പ്രചോദനം നൽകാനുതകുന്ന അന്തരീക്ഷം.	
e.	സ്വയം രൂപകല്പന ചെയ്യാനുതകുന്ന അന്തരീക്ഷം.	

12 പരീക്ഷയിലെ ചോദ്യങ്ങൾ ആസ്പദമാക്കേ ത്

a.	ആശയങ്ങളും, തത്വങ്ങളും, വസ്തുതകളും.	
b.	വ്യക്തമായ പഠനലക്ഷ്യങ്ങളെ.	
c.	ജീവിതോൻമുഖതയെ.	
d.	വിശകലനശേഷികളുടെ പോഷണം.	
e.	സ്വയം ആർജ്ജിച്ച കഴിവിനെ ബോധ്യപ്പെടുത്തൽ	

13 ഞാൻ മൂല്യനിർണയം നടത്തുമ്പോൾ മുൻഗണന നൽകുന്നത്

a.	വസ്തുതകൾക്കും, ആശയങ്ങൾക്കും.	
b.	പഠനോദ്ദേശങ്ങളും ഉത്തരത്തിലെ കൃത്യതയ്ക്കും.	
c.	വ്യക്ത്യാധിഷ്ഠിതവും എന്നാൽ യുക്തിനിഷ്ഠവുമായ പ്രതികരണങ്ങൾക്ക്.	
d.	പരിശ്രമങ്ങൾക്കും, അനുഭവങ്ങൾക്കും മതിയായ പരിഗണന.	
e.	വിദ്യാർത്ഥി സ്വയം രൂപകല്പന ചെയ്യുന്ന ആശയങ്ങൾക്ക്.	

14 ഞാൻ മാർക്ക് നൽകുന്നത്.

a.	വിഷയാധിഷ്ഠിതമായ ആശയങ്ങൾക്ക്.	
b.	പാഠഭാഗത്തിലെ കൃത്യമായ ഉത്തരങ്ങൾക്ക്.	
c.	ജീവിതഗന്ധിയായ ഉത്തരങ്ങൾക്ക്.	
d.	വൈവിധ്യമാർന്ന ആശയങ്ങൾക്ക്.	
e.	സ്വതന്ത്രമായി ആർജിച്ചെടുക്കുന്ന അറിവിന്.	

15 ഞാൻ പ്രബലനം (Reinforcement) നൽകുന്നത്

a.	കുട്ടിയുടെ അറിവിന്.	
b.	ചിട്ടയായ പഠനത്തിന്.	
c.	വ്യക്തിഗതമായ ഗുണങ്ങൾക്ക്.	
d.	സംഘപ്രവർത്തനങ്ങൾക്ക്.	
e.	സ്വയം പഠനത്തിന്.	

16 ഞാൻ ക്ലാസ് റൂമിലെ പ്രശ്നങ്ങൾ പരിഹരിക്കുമ്പോൾ

a.	പ്രശ്നപരിഹാരത്തിൽ കൂടുതൽ നൈപുണിയുള്ളവരെ ആശ്രയിക്കും	
b.	നിയമാനുസൃതവും നിലവിലുള്ളതുമായ രീതികൾ അവലംബിക്കുന്ന തീരുമാനങ്ങൾ	
c.	സ്നേഹസമ്പന്നനായ രക്ഷിതാവിനെപ്പോലെ പ്രശ്നത്തിന്റെ വിവിധ വശങ്ങൾ ആലോചിക്കുന്നു.	
d.	ഗ്രൂപ്പിനെ സംബന്ധിച്ച് പ്രായോഗികമായ തീരുമാനങ്ങൾ.	
e.	ക്രിയാത്മകവും, പുതുമയാർന്നതുമായ തീരുമാനങ്ങൾ.	

17 എന്റെ അഭിപ്രായത്തിൽ ഒരധ്യാപകന്റെ പ്രഥമ ജോലി

a.	വിജ്ഞാന ദാതാവ്.	
b.	കൃത്യയും, വ്യക്തതയും, സ്പഷ്ടതയും പുലർത്തുന്നയാൾ.	
c.	മാതൃകാപരമായ വ്യക്തിത്വമുള്ളയാൾ.	
d.	കുട്ടികൾക്ക് പ്രോത്സാഹനവും, പിന്തുണയും നൽകുന്നയാൾ	
e.	കുട്ടികളുടെ സ്വയം പഠനശേഷിയെ പരിപോഷിപ്പിക്കുന്നയാൾ	

18 എന്റെ അഭിപ്രായത്തിൽ വിദ്യാഭ്യാസത്തിന്റെ ലക്ഷ്യം

a.	ജ്ഞാന സമ്പാദനം.	
b.	ക്രമാനുഗതവികാസം	
c.	മാതൃകാ വ്യക്തിത്വത്തെ രൂപപ്പെടുത്തൽ.	
d.	ബഹുമുഖ വികാസം.	
e.	സ്വയം പര്യാപ്തത കൈവരിക്കൽ.	

19 അധ്യാപകന്റെ നൈപുണി (skill) കൂടുതൽ പ്രകടമാക്കേ ത്

a.	വിഷയ പ്രതിപാദനത്തിൽ.	
b.	സമയബന്ധിതമായ ലക്ഷ്യങ്ങൾ നേടുന്നതിൽ.	
c.	വിദ്യാർത്ഥികൾക്ക് മനസ്സിലാവുന്ന വിധത്തിൽ പ്രതിപാദിക്കുന്നതിൽ	
d.	വ്യത്യസ്ത പഠനശൈലികളെ തിരിച്ചറിഞ്ഞ് പ്രോത്സാഹിപ്പിക്കുന്നതിൽ.	
e.	വിദ്യാർത്ഥിയുടെ പര്യാപ്തതക്കാവശ്യമായ മാർഗ്ഗദർശനം നൽകുന്നതിൽ.	

20 എന്റെ വിശ്വാസത്തിൽ എന്റെ ക്ലാസിനെക്കുറിച്ചുള്ള വിദ്യാർത്ഥികളുടെ വിലയിരുത്തൽ

a.	വിഷയത്തിൽ അഗാധ അറിവുള്ളയാൾ.	
b.	ചിട്ടയും, സമയനിഷ്ഠയും, ലക്ഷ്യബോധവുമുള്ളയാൾ.	
c.	വ്യക്തിബന്ധത്തിന് പ്രാധാന്യം നൽകുന്നയാൾ.	
d.	പഠനാന്വേഷണങ്ങൾക്ക് നേതൃത്വം നൽകുന്നയാൾ.	
e.	വിദ്യാർത്ഥികളിൽ ഉത്തരവാദിത്തബോധം ഉ ാക്കുന്നയാൾ.	

Appendix A2
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
TEACHING STYLE INVENTORY ENGLISH [DRAFT]

Dr. K. Abdul Gafoor
Associate Professor
Department of Education
University of Calicut.

Haskar Babu U.
Research Scholar
Department of Education
University of Calicut.

Name :
Name of the School :
Subject Taught :
Educational Qualification : DG ☐ PG. ☐ Others ☐
Gender : Male ☐ Female ☐
Age : 22-30 ☐ 31-40 ☐ 41 & Above ☐

Given below are some statements about how to respond to situations /activities related to teaching. Five possible responses are given for each situation/activity. You are requested to mark 1 for most appropriate response, 2 for the next suitable response, 3 and 4 for your next choices and 5 for the most unsuitable response in the column for marking response.

1. According to me the best quality of a student is

a.	acquire subject competency	
b.	follow the existing rules and standards	
c.	emulate my methods and approaches	
d.	self learning with my assistance	
e.	be responsible about duties	

2. The responsibilities of students are

a.	acquire facts, content and principles	
b.	try to obtain objectives through systematic activities	
c.	emulate good study habits	
d.	recognize diverse learning styles individually	
e.	Taking up learning responsibilities by themselves	

3. My emphasis on classroom communication is to

a.	describe the content in detail	
b.	express the required ideas	
c.	Explaining by illustrations	
d.	Understanding individual qualities of students	
e.	Reduce the interference of the teacher up to the maximum level	

4. My emphasis on the methods of teaching

a.	subject - oriented	
b.	curriculum -oriented	
c.	life- oriented	
d.	student- oriented	
e.	activity- oriented	

5. The learning should aim at

a.	Mastery of the subject	
b.	Systematic knowledge	
c.	Self-actualization	
d.	Multi-faceted development	
e.	Self-acquired experience	

6. I use the text book

a.	As an introduction to learning	
b.	As a minimum essential content	
c.	Related to life	
d.	To make aware of varied activities to students	
e.	As a model of activities for encouraging students	

7. Time management

a.	explain the content even if the time is over	
b.	it should be time-bound	
c.	keep student relationship beyond time limit	
d.	demonstrate to students the strategies of time management	
e.	students should do it themselves	

8. I ask questions

a.	to evaluate the subject knowledge of students	
b.	to evaluate the achievement of instructional objectives	
c.	to relate subject with personal life	
d.	to help learning activities	
e.	Rarely	

9 Giving learning projects

a.	Provide assimilation of knowledge	
b.	Based on clear design	
c.	to foster the life skills and values	
d.	to acquire skills related to the subject	
e.	To frame the project according to the choice of students	

10 Lesson plan must give importance to

a.	Most advanced information	
b.	specific learning objectives	
c.	adopt personal life experience	
d.	student-centeredness	
e.	foster independent thinking	

11 In my opinion, the classroom management should give emphasis on the students / student's

a.	thought provoking atmosphere	
b.	fulfillment of definite aims	
c.	An atmosphere for analyzing their experiences	
d.	motivating atmosphere	
e.	An atmosphere framed by themselves	

12 The examination questions should be based on

a.	Facts, principles and concepts	
b.	Clear learning objectives	
c.	life-oriented	
d.	Fostering of analytical ability	
e.	Realize the self acquired ability	

13 In evaluation I give weightage to

a.	facts and ideas	
b.	learning objectives and accuracy of answers	
c.	Individualized rational responses	
d.	due consideration for efforts and experience	
e.	Ideas created by the students themselves	

14 I give marks to

a.	subject related ideas	
b.	the accuracy of answers given in the content	
c.	life related answers	
d.	variety of ideas	
e.	the knowledge acquired independently	

15 I give reinforcement to

a.	the student's knowledge	
b.	systematic learning	
c.	Individualistic qualities	
d.	group activities	
e.	self-learning	

16 When I solve the classroom problems,

a.	depend upon the person having sufficient skill in problem solving	
b.	decisions according to the existing rules and norms	
c.	thinking the various dimensions of problems as a beloved guardian	
d.	practical decisions regarding the group	
e.	dynamic and novel decisions	

17 In my opinion, the primary duty of a teacher is

a.	one who imparts knowledge	
b.	one who maintains punctuality, accuracy and clearness	
c.	one who has an ideal personality	
d.	one who gives encouragement and support to students	
e.	one who foster self learning ability of the students	

18 In my opinion, the aim of education is

a.	knowledge acquisition	
b.	gradual development	
c.	mould an ideal personality	
d.	All round development	
e.	achieve self sufficiency	

19 The skill of a teacher is to be exhibited mostly in

a.	Explaining the content	
b.	Achieving the instructional objectives in time bounded manner	
c.	Explaining to students in an understandable manner	
d.	Recognizing and fostering different learning styles	
e.	Giving guidance to students for self-sufficiency	

20 Students evaluation of my class according to me

a.	One who has indepth knowledge in the subject	
b.	One who is systematic, punctual, and objective oriented	
c.	One who gives importance to personal relationship	
d.	One who gives leadership in academic inquiry	
e.	One who creates sense of responsibility among students	

Appendix A3
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
TEACHING STYLE INVENTORY-MALAYALAM [Final]

Dr. K. Abdul Gafoor
Associate Professor
Department of Education
University of Calicut.

Haskar Babu U.
Research Scholar
Department of Education
University of Calicut.

സ്കൂളിന്റെ പേര് :

ജില്ല :

ടീച്ചറുടെ പേര് :

പഠിപ്പിക്കുന്ന വിഷയം :

ലിംഗം : ആൺ ☐ പെൺ ☐ (ടിക്ക് ✓ ചെയ്യുക)

വിദ്യാഭ്യാസ യോഗ്യത : ഡിഗ്രി ☐ പി.ജി. ☐ ബി.എഡ് ☐ മറ്റുള്ളവ

അദ്ധ്യാപന പരിചയം (വർഷത്തിൽ): :

വയസ്സ് : 22-30 ☐ 31-40 ☐ 41 - 50 ☐ 51-ന് മുകളിൽ ☐

അധ്യാപകവൃത്തിയുമായി ബന്ധപ്പെട്ട ചില സാഹചര്യങ്ങളോട്/ പ്രവർത്തികളോട് നിങ്ങളെങ്ങനെ പ്രതികരിക്കുന്നു എന്നതിനെ സംബന്ധിച്ച ഒരു കൂട്ടം പ്രസ്താവനകളാണ് താഴെ കൊടുത്തിരിക്കുന്നത്. ഓരോ സാഹചര്യത്തിനും/ പ്രവർത്തിക്കും സാധ്യമായ അഞ്ച് പ്രതികരണങ്ങൾ നൽകിയിട്ടു ്. ഇതിൽ **നിങ്ങൾക്ക് ഏറ്റവും അനുയോജ്യമെന്ന് തോന്നുന്ന പ്രതികരണത്തിന് ഒന്ന് (1)** എന്നും **ര ാമതായി ഏറ്റവും അനുയോജ്യമായ പ്രതികരണത്തിന് ര ് (2)** എന്നും, **തുടർന്ന് മൂന്ന് (3) നാല് (4)** എന്നും **ഏറ്റവും അനു യോജ്യമല്ലാത്ത പ്രതികരണത്തിന് അഞ്ച് (5)** എന്നും അതത് പ്രതികരണത്തിന് നേരെ യുള്ള ബോക്സിലെഴുതാം.

ഉദാ:

എന്നെ സംബന്ധിച്ച് വിദ്യാർത്ഥിയുടെ ഏറ്റവും നല്ല ഗുണം

a.	വിഷയാവഗാഹം നേടണം	4
b.	നിലവിലുള്ള നിയമങ്ങളും മാനദണ്ഡങ്ങളും അനുസരിക്കണം	1
c.	എന്റെ സമീപനങ്ങളും രീതികളും അനുകരിക്കണം	3
d.	എന്റെ സഹായത്താൽ സ്വയം പഠിക്കണം	5
e.	ഉത്തരവാദിത്തബോധമുള്ളവരാകണം.	2

എനിക്ക് ഏറ്റവും അനുയോജ്യമെന്ന് തോന്നിയ പ്രതികരണങ്ങളാണ് ഞാൻ റാങ്ക് ചെയ്തത്. **താങ്കളെ സംബന്ധിച്ച് ഏറ്റവും അനുയോജ്യമായ പ്രതികരണങ്ങൾ റാങ്ക് ചെയ്യാൻ ശ്രദ്ധിക്കുമല്ലോ**.

1. ക്ലാസ് റൂമിലെ ആശയവിനിമയത്തിൽ എന്റെ ഊന്നൽ

a.	വിഷയം വിശദമായി പ്രതിപാദിക്കുന്നതിന്	
b.	അവശ്യമായ ആശയങ്ങൾ പ്രകടിപ്പിക്കുന്നതിന്	
c.	ഉദാഹരണങ്ങൾ നൽകിയുള്ള വിശദീകരണത്തിന്	
d.	വിദ്യാർത്ഥികളിലെ വ്യക്തിനിഷ്ഠത ഉൾകൊളളുന്നതിന്	
e.	അധ്യാപകന്റെ ഇടപെടൽ പരമാവധി കുറയ്ക്കുന്നതിന്	

2. അധ്യാപനരീതിയിൽ എന്റെ ഊന്നൽ

a.	വിഷയ കേന്ദ്രീകൃതം.	
b.	പാഠ്യപദ്ധതി കേന്ദ്രീകൃതം.	
c.	ജീവിത കേന്ദ്രീകൃതം.	
d.	വിദ്യാർത്ഥി കേന്ദ്രീകൃതം.	
e.	പ്രവർത്തി കേന്ദ്രീകൃതം.	

3. പഠനം ലക്ഷ്യമാക്കേ ത്

a.	വിഷയാനുബന്ധ വൈദഗ്ധ്യം.	
b.	ചിട്ടപ്പെടുത്തിയ അറിവ്	
c.	ആത്മസാക്ഷാത്ക്കാരം.	
d.	ബഹുമുഖ വികാസം.	
e.	സ്വയാർജ്ജിത അനുഭവസമ്പത്ത്.	

4. സമയ ക്രമീകരണം

a.	തെറ്റിയാലും പാഠഭാഗങ്ങൾ വിശദീകരിക്കേ താണ്.	
b.	കൃത്യമായി പാലിക്കേ താണ്.	
c.	മറികടന്നും വിദ്യാർത്ഥിബന്ധം സൂക്ഷിക്കേ താണ്.	
d.	പാലിക്കാൻ വേ തന്ത്രങ്ങൾ വിദ്യാർത്ഥികൾക്ക് കാണിച്ച് കൊടുക്കേ താണ്.	
e.	വിദ്യാർത്ഥികൾ സ്വയം നടത്തേ താണ്.	

5. പഠനാസൂത്രണരേഖ (Lesson Plan) പ്രാധാന്യം നൽകേ ത്.

a.	ഏറ്റവും പുതിയ വിവരങ്ങൾ	
b.	നിശ്ചിത പഠനോദ്ദേശങ്ങൾ	
c.	വ്യക്തിജീവിതത്തിലെ അനുഭവങ്ങളെ അവലംബിക്കൽ.	
d.	വിദ്യാർത്ഥി കേന്ദ്രീകൃതമാക്കൽ.	
e.	സ്വതന്ത്രചിന്തയെ പരിപോഷിപ്പിക്കൽ.	

6. എന്റെ അഭിപ്രായത്തിൽ ക്ലാസ്റൂം മാനേജ്മെന്റ് ഊന്നൽ നൽകേ ത് വിദ്യാർത്ഥികളുടെ/വിദ്യാർത്ഥികൾക്ക്

a.	ചിന്തയെ ഉദ്ദീപിപ്പിക്കുന്ന അന്തരീക്ഷം	
b.	നിയതമായ ലക്ഷ്യപ്രാപ്തി.	
c.	അനുഭവങ്ങളെ വിശകലനം ചെയ്യുന്ന അന്തരീക്ഷം.	
d.	പ്രചോദനം നൽകാനുതകുന്ന അന്തരീക്ഷം.	
e.	സ്വയം രൂപകല്പന ചെയ്യാനുതകുന്ന അന്തരീക്ഷം.	

7. പരീക്ഷയിലെ ചോദ്യങ്ങൾ ആസ്പദമാക്കേ ത്

a.	ആശയങ്ങളും, തത്വങ്ങളും, വസ്തുതകളും.	
b.	വ്യക്തമായ പഠനലക്ഷ്യങ്ങളെ.	
c.	ജീവിതോൻമുഖതയെ.	
d.	വിശകലനശേഷികളുടെ പോഷണം.	
e.	സ്വയം ആർജ്ജിച്ച കഴിവിനെ ബോധ്യപ്പെടുത്തൽ	

8. ഞാൻ മൂല്യനിർണയം നടത്തുമ്പോൾ മുൻഗണന നൽകുന്നത്

a.	വസ്തുതകൾക്കും, ആശയങ്ങൾക്കും.	
b.	പഠനോദ്ദേശങ്ങളും ഉത്തരത്തിലെ കൃത്യതയ്ക്കും.	
c.	വ്യക്ത്യാധിഷ്ഠിതവും എന്നാൽ യുക്തിനിഷ്ഠവുമായ പ്രതികരണങ്ങൾക്ക്.	
d.	പരിശ്രമങ്ങൾക്കും, അനുഭവങ്ങൾക്കും മതിയായ പരിഗണന.	
e.	വിദ്യാർത്ഥി സ്വയം രൂപകല്പന ചെയ്യുന്ന ആശയങ്ങൾക്ക്.	

9. ഞാൻ മാർക്ക് നൽകുന്നത്.

a.	വിഷയാധിഷ്ഠിതമായ ആശയങ്ങൾക്ക്.	
b.	പാഠഭാഗത്തിലെ കൃത്യമായ ഉത്തരങ്ങൾക്ക്.	
c.	ജീവിതഗന്ധിയായ ഉത്തരങ്ങൾക്ക്.	
d.	വൈവിധ്യമാർന്ന ആശയങ്ങൾക്ക്.	
e.	സ്വതന്ത്രമായി ആർജിച്ചെടുക്കുന്ന അറിവിന്.	

10. ഞാൻ പ്രബലനം (Reinforcement) നൽകുന്നത്

a.	കുട്ടിയുടെ അറിവിന്.	
b.	ചിട്ടയായ പഠനത്തിന്.	
c.	വ്യക്തിഗതമായ ഗുണങ്ങൾക്ക്.	
d.	സംഘപ്രവർത്തനങ്ങൾക്ക്.	
e.	സ്വയം പഠനത്തിന്.	

11. ഞാൻ ക്ലാസ് റൂമിലെ പ്രശ്നങ്ങൾ പരിഹരിക്കുമ്പോൾ

a.	പ്രശ്നപരിഹാരത്തിൽ കൂടുതൽ നൈപുണിയുള്ളവരെ ആശ്രയിക്കും	
b.	നിയമാനുസൃതവും നിലവിലുള്ളതുമായ രീതികൾ അവലംബിക്കുന്ന തീരുമാനങ്ങൾ	
c.	സ്നേഹസമ്പന്നനായ രക്ഷിതാവിനെപ്പോലെ പ്രശ്നത്തിന്റെ വിവിധ വശങ്ങൾ ആലോചിക്കുന്നു.	
d.	ഗ്രൂപ്പിനെ സംബന്ധിച്ച് പ്രായോഗികമായ തീരുമാനങ്ങൾ.	
e.	ക്രിയാത്മകവും, പുതുമയാർന്നതുമായ തീരുമാനങ്ങൾ.	

12 എന്റെ അഭിപ്രായത്തിൽ ഒരധ്യാപകന്റെ പ്രഥമ ജോലി

a.	വിജ്ഞാന ദാതാവ്.	
b.	കൃത്യയും, വ്യക്തതയും, സ്പഷ്ടതയും പുലർത്തുന്നയാൾ.	
c.	മാതൃകാപരമായ വ്യക്തിത്വമുള്ളയാൾ.	
d.	കുട്ടികൾക്ക് പ്രോത്സാഹനവും, പിന്തുണയും നൽകുന്നയാൾ	
e.	കുട്ടികളുടെ സ്വയം പഠനശേഷിയെ പരിപോഷിപ്പിക്കുന്നയാൾ	

13. എന്റെ അഭിപ്രായത്തിൽ വിദ്യാഭ്യാസത്തിന്റെ ലക്ഷ്യം

a.	ജ്ഞാന സമ്പാദനം.	
b.	ക്രമാനുഗതവികാസം	
c.	മാതൃകാ വ്യക്തിത്വത്തെ രൂപപ്പെടുത്തൽ.	
d.	ബഹുമുഖ വികാസം.	
e.	സ്വയം പര്യാപ്തത കൈവരിക്കൽ.	

14. അധ്യാപകന്റെ നൈപുണി (skill) കൂടുതൽ പ്രകടമാക്കേ ത്

a.	വിഷയ പ്രതിപാദനത്തിൽ.	
b.	സമയബന്ധിതമായ ലക്ഷ്യങ്ങൾ നേടുന്നതിൽ.	
c.	വിദ്യാർത്ഥികൾക്ക് മനസ്സിലാവുന്ന വിധത്തിൽ പ്രതിപാദിക്കുന്നതിൽ	
d.	വ്യത്യസ്ത പഠനശൈലികളെ തിരിച്ചറിഞ്ഞ് പ്രോത്സാഹിപ്പിക്കുന്നതിൽ.	
e.	വിദ്യാർത്ഥിയുടെ പര്യാപ്തതക്കാവശ്യമായ മാർഗ്ഗദർശനം നൽകുന്നതിൽ.	

15. എന്റെ വിശ്വാസത്തിൽ എന്റെ ക്ലാസിനെക്കുറിച്ചുള്ള വിദ്യാർത്ഥികളുടെ വിലയിരുത്തൽ

a.	വിഷയത്തിൽ അഗാധ അറിവുള്ളയാൾ.	
b.	ചിട്ടയും, സമയനിഷ്ഠയും, ലക്ഷ്യബോധവുമുള്ളയാൾ.	
c.	വ്യക്തിബന്ധത്തിന് പ്രാധാന്യം നൽകുന്നയാൾ.	
d.	പഠനാന്വേഷണങ്ങൾക്ക് നേതൃത്വം നൽകുന്നയാൾ.	
e.	വിദ്യാർത്ഥികളിൽ ഉത്തരവാദിത്തബോധം ഉ ാക്കുന്നയാൾ.	

Appendix A4
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
TEACHING STYLE INVENTORY ENGLISH [FINAL]

Dr. K. Abdul Gafoor
Associate Professor
Department of Education
University of Calicut.

Haskar Babu U.
Research Scholar
Department of Education
University of Calicut.

Name of School :

District :

Name of the teacher :

Teaching subject :

Gender : Male ☐ Female ☐

Educational Qualification : DG ☐ PG. ☐ Others ☐

Teaching Experience (in years) :

Age : 22-30 ☐ 31-40 ☐ 41 -50 ☐ 50 Above ☐

Given below are some statements about how to respond to situations /activities related to teaching. Five possible responses are given for each situation/activity. You are requested to mark 1 for most appropriate response, 2 for the next suitable response, 3 and 4 for your next choices and 5 for the most unsuitable response in the column for marking response.

Eg. According to me the best quality of a student is

a.	acquire subject competency	4
b.	follow the existing rules and standards	1
c.	emulate my methods and approaches	3
d.	self learning with my assistance	5
e.	be responsible about duties	2

1. My emphasis on classroom communication is to

a.	describe the content in detail	
b.	express the required ideas	
c.	explaining by illustrations	
d.	understanding individual qualities of students	
e.	reduce the interference of the teacher up to the maximum level	

2. My emphasis on the methods of teaching

a.	Subject - oriented	
b.	Curriculum -oriented	
c.	Life- oriented	
d.	Student- oriented	
e.	Activity- oriented	

3. The learning should aim at

a.	mastery of the subject	
b.	systematic knowledge	
c.	self-actualization	
d.	multi-faceted development	
e.	self-acquired experience	

4. Time management

a.	explain the content even if the time is over	
b.	it should be time-bound	
c.	keep student relationship beyond time limit	
d.	demonstrate to students the strategies of time management	
e.	students should do it themselves	

5 Lesson plan must give importance to

a.	most advanced information	
b.	specific learning objectives	
c.	adopt personal life experience	
d.	student-centeredness	
e.	foster independent thinking	

6. In my opinion, the classroom management should give emphasis on the students / student's

a.	thought provoking atmosphere	
b.	fulfillment of definite aims	
c.	an atmosphere for analyzing their experiences	
d.	motivating atmosphere	
e.	an atmosphere framed by themselves	

7. The examination questions should be based on

a.	facts, principles and concepts	
b.	clear learning objectives	
c.	life-oriented	
d.	fostering of analytical ability	
e.	realize the self acquired ability	

8. In evaluation I give weightage to

a.	facts and ideas	
b.	learning objectives and accuracy of answers	
c.	individualized rational responses	
d.	due consideration for efforts and experience	
e.	ideas created by the students themselves	

9. I give marks to

a.	subject related ideas	
b.	the accuracy of answers given in the content	
c.	life related answers	
d.	variety of ideas	
e.	the knowledge acquired independently	

10. I give reinforcement to

a.	the student's knowledge	
b.	systematic learning	
c.	Individualistic qualities	
d.	group activities	
e.	self-learning	

11. When I solve the classroom problems,

a.	depend upon the person having sufficient skill in problem solving	
b.	decisions according to the existing rules and norms	
c.	thinking the various dimensions of problems as a beloved guardian	
d.	practical decisions regarding the group	
e.	dynamic and novel decisions	

12. In my opinion, the primary duty of a teacher is

a.	one who imparts knowledge	
b.	one who maintains punctuality, accuracy and clearness	
c.	one who has an ideal personality	
d.	one who gives encouragement and support to students	
e.	one who foster self learning ability of the students	

13. In my opinion, the aim of education is

a.	knowledge acquisition	
b.	gradual development	
c.	mould an ideal personality	
d.	all round development	
e.	achieve self sufficiency	

14. The skill of a teacher is to be exhibited mostly in

a.	explaining the content	
b.	achieving the instructional objectives in time bounded manner	
c.	explaining to students in an understandable manner	
d.	recognizing and fostering different learning styles	
e.	giving guidance to students for self-sufficiency	

15. Students evaluation of my class according to me

a.	one who has indepth knowledge in the subject	
b.	one who is systematic, punctual, and objective oriented	
c.	one who gives importance to personal relationship	
d.	one who gives leadership in academic inquiry	
e.	one who creates sense of responsibility among students	

Appendix B1
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
THINKING STYLE INVENTORY MALAYALAM
[DRAFT]

Dr. K. Abdul Gafoor
Associate Professor

Haskar Babu. U.
Research Scholar

Name..... Subject:.....

Sex : Male / Female

Age : 20 - 25 / 26 - 30 /30 above

Teaching Experience :

Educational Qualification:

School :

താങ്കളുടെ ചിന്താരീതി മനസ്സിലാക്കുന്നതിനുവേ 1 ചില പ്രസ്താവനകളാണ് താഴെ നൽകിയിരിക്കുന്നത്. പ്രസ്താവനകളെ അഞ്ച് ഭാഗങ്ങളായി തിരിച്ചിരിക്കുന്നു. ഓരോ ഭാഗത്തിനും നല്കിയ നിർദ്ദേശങ്ങൾ ശ്രദ്ധിച്ചുവായിച്ചതിനുശേഷം മാത്രം പ്രതികരണം രേഖപ്പെടുത്തുക.

Part I

ഭാഗം ഒന്നിൽ നിത്യജീവിതത്തിലെ ചില സന്ദർഭങ്ങളാണ് ഓരോ പ്രസ്താവനകളിലും തന്നിരിക്കുന്നത്. ഓരോ സന്ദർഭത്തിലും താങ്കൾ പെരുമാറാൻ സാധ്യതയുള്ള മൂന്ന് രീതികൾ A, B, C. എന്നീ ഉത്തരങ്ങളായി നൽകിയിട്ടു ്. ഓരോ സന്ദർഭത്തിനും അനുയോജ്യമായ പ്രതികരണം രേഖപ്പെടുത്താൻ വലതുവശത്തായി ഒരു ചതുരം (□) നൽകിയിട്ടു ്. **നിങ്ങളെ സംബന്ധിച്ച് ഏറ്റവും അനുയോജ്യമെന്ന് തോന്നുന്ന പ്രതികരണത്തിന്റെ അക്ഷരം** (A / B / C) ബോക്സിൽ എഴുതുക.

1. **ഞാൻ തീരുമാനമെടുക്കുമ്പോൾ**
   - A. പുതുമ നോക്കുന്നു.
   - B. പ്രായോഗികത നോക്കുന്നു.
   - C. ശരി നോക്കുന്നു.

2. **എന്റെ പ്രവർത്തനമേഖല തെരഞ്ഞെടുക്കേ 1 വരുമ്പോൾ**
   - A. പുതുമ നോക്കുന്നു.
   - B. പ്രായോഗികത നോക്കുന്നു.
   - C. യുക്തി നോക്കുന്നു.

3. **വായിക്കുമ്പോൾ ഞാൻ സാധാരണയായി**
   - A. ആശയങ്ങൾ സ്വാംശീകരിക്കാൻ ശ്രമിക്കുന്നു
   - B. ആശയങ്ങൾ ക്രമപ്പെടുത്താൻ ശ്രമിക്കുന്നു.
   - C. എഴുത്തുകാരന്റെ വീക്ഷണങ്ങളെ മനസ്സിലാക്കാൻ ശ്രമിക്കുന്നു.

4. **ഞാൻ വീട് ഉ ാക്കിയപ്പോൾ/ഉ ാക്കുമ്പോൾ**
   - A. വ്യത്യസ്തതയുള്ളത് ചെയ്യുന്നു.
   - B. പ്രചാരത്തിലുള്ള രീതി അവലംബിക്കുന്നു.
   - C. പല വീടുകളുടേയും നല്ല അംശങ്ങൾ ഉൾക്കൊള്ളിച്ചും ദോഷവശങ്ങൾ ഒഴിവാക്കിയും ചെയ്യുന്നു.

5. **ആളുകളോട് സംവദിക്കുമ്പോൾ പൊതുവേ ഞാൻ**
   A. എന്റെ വീക്ഷണകോൺ ശ്രോതാവിനെ ബോധ്യപ്പെടുത്താൻ ശ്രമിക്കുന്നു.
   B. സംസാരത്തിലെ മര്യാദകൾ പാലിച്ച് മനസ്സിലാകുന്ന രീതിയിൽ പറയാൻ ശ്രമിക്കുന്നു.
   C. ശ്രോതാവിന്റെ ആശയങ്ങളെ വിശകലനം ചെയ്യുന്നു.
6. **സംഘപ്രവർത്തനങ്ങളിൽ ഉത്തരവാദിത്തമേറ്റെടുക്കുമ്പോൾ എനിക്കിഷ്ടം**
   A. കാര്യങ്ങൾ ആസൂത്രണം ചെയ്യാനാണ്
   B. ആസൂത്രണത്തിനനുസരിച്ച് പ്രവർത്തിക്കാനാണ്.
   C. പ്രവർത്തികൾ കൂടുതൽ മെച്ചപ്പെടുത്താനാണ്.
7. **വിദ്യാഭ്യാസം കൂടുതൽ ഊന്നൽ നൽകേ ത് വിദ്യാർത്ഥിയുടെ**
   A. സർഗ്ഗാത്മകത B. പ്രവർത്തനക്ഷമത
   C. വിശകലനാക്ഷമത
8. **ജീവിത സാക്ഷാത്കാരത്തിന് പ്രാഥമികമായി വേ ത്**
   A. ആസൂത്രണപാടവം B. പ്രവർത്തനക്ഷമത C. വിശകലനശേഷി
9. **എന്റെ അഭിപ്രായത്തിൽ നേതാക്കൾ ആർജ്ജിക്കേ ത്**
   A. സൃഷ്ടിപരമായ നേതൃത്വം B. ക്രിയാത്മകമായ നേതൃത്വം
   C. വിവേകമുള്ള നേതൃത്വം
10. **മീറ്റിംഗുകളിൽ ഞാൻ നൽകുന്നത്**
   A. വൈവിധ്യമാർന്ന ആശയങ്ങൾ
   B. പ്രായോഗികമായ നിർദ്ദേശങ്ങൾ
   C. യുക്തിഭദ്രമായ തീരുമാനങ്ങൾ
11. **എന്റെ അഭിപ്രായത്തിൽ ഏറ്റവും പ്രധാനപ്പെട്ട വിജയതത്വം**
   A. സ്വയം പ്രവർത്തനം B. കർമ്മോത്സുകത C. ആത്മപരിശോധന
12. **ഞാൻ എന്റെ കഴിവുകളെ**
   A. കെ ത്താൻ ശ്രമിക്കുന്നു. B. ഉപയോഗപ്പെടുത്തുന്നു.
   C. വിലയിരുത്തുന്നു.
13. **എന്റെ പ്രധാനഗുണമായി ഞാൻ കണക്കാക്കുന്നത്**
   A. ആസൂത്രണബോധം B. ഉത്തരവാദിത്തബോധം
   C. മൂല്യബോധം
14. **അറിവിന്റെ ഏറ്റവും നല്ല ഗുണം**
   A. പുതുമ B. ക്രമീകരണം C. വസ്തുനിഷ്ഠത
15. **കൂടുതൽ മൂല്യവത്തായ ചിന്താരീതി**
   A. വിവ്രചനചിന്ത (വികേന്ദ്രികൃത) (Divergent Thinking)
   B. കേന്ദ്രീകൃത/കേന്ദ്രാഭിമുഖചിന്ത (Convergent Thinking)
   C. വിമർശനാത്മകചിന്ത
16. **എന്നെ പൊതുവേ വിശേഷിപ്പിക്കുന്നത്**
   A. ആശയസമൃദ്ധിയുള്ളയാൾ B. ഉത്തരവാദിത്ത ബോധമുള്ളയാൾ
   C. വിശകലനശേഷിയുള്ളയാൾ
17. **എന്റെ വീക്ഷണത്തിൽ പാഠ്യപദ്ധതി വിദ്യാർത്ഥികളുടെ**
   A. സ്വയം പഠനശേഷിയെ പരിപോഷിപ്പിക്കണം
   B. കഴിവിനെ ഉദ്ദേശാധിഷ്ഠിതമായി പരിപോഷിപ്പിക്കണം.
   C. അവലോകനക്ഷമത പ്രോത്സാഹിപ്പിക്കണം.

18. **ക്ലാസ്റൂമിൽ അച്ചടക്കം നിലനിർത്താൻ ഞാൻ ഉപയോഗിക്കുന്ന മാർഗ്ഗം**
   A. വൈവിധ്യങ്ങളായ പഠനരീതികൾ
   B. വ്യക്തമായ മാർഗ്ഗനിർദ്ദേശങ്ങൾ
   C. കാര്യകാരണത്തോടെയുള്ള വിശകലനം
19. **എന്റെ അഭിപ്രായത്തിൽ സ്കൂളിലെ സ്റ്റാഫ് മീറ്റിംങ്ങുകൾ**
   A. ക്രിയാത്മകവും സ്വതന്ത്രവുമായ നിർദ്ദേശങ്ങൾ നടപ്പിലാക്കാൻ ശ്രമിക്കണം.
   B. സ്കൂളിലെ നിയമങ്ങളും ചട്ടങ്ങളും അനുസരിച്ചുള്ള പ്രവർത്തനങ്ങൾ നടപ്പിലാക്കാൻ ശ്രമിക്കണം.
   C. സ്കൂളിന്റെ പ്രവർത്തനങ്ങളെ വിമർശനവിധേയമായി വിലയിരുത്താൻ ശ്രമിക്കണം.
20. **ഞാൻ ഒരു ലേഖനമോ, പുസ്തകമോ വായിച്ച് കഴിഞ്ഞാൽ**
   A. പുതിയ ചില ആശയങ്ങൾ ചിന്തയിൽ വരാറു ്.
   B. പ്രധാന ആശയങ്ങൾ ഓർത്തുവെക്കാറു ്.
   C. ഉള്ളടക്കവും സാരാംശവും വിലയിരുത്താറു ്.
21. **വിദ്യാർത്ഥികളുമായുള്ള ചോദ്യോത്തരങ്ങളിൽ ഞാൻ പ്രതീക്ഷിക്കുന്നത്**
   A. അവരുടേതായ ആശയങ്ങൾ.
   B. കൃത്യതയുള്ള സ്പഷ്ടമായ പ്രതികരണങ്ങൾ
   C. യുക്തിസഹമായ പ്രതികരണങ്ങൾ
22. **പഠനാസൂത്രണരേഖ (Lesson plan) യിൽ ഞാൻ ഊന്നൽ നൽകുന്നത്**
   A. വൈവിധ്യമാർന്ന സ്വന്തമായ രീതിയിലുള്ള പഠനപ്രവർത്തനങ്ങൾക്ക്
   B. പാഠ്യപദ്ധതിയിലെ ഉദ്ദേശലക്ഷ്യങ്ങൾക്ക്
   C. പാഠ്യപദ്ധതി വിദ്യാർത്ഥികൾക്കനുസൃതമായി രൂപപ്പെടുത്തുന്നതിന്
23. **ഞാൻ പാഠ്യേതരപ്രവർത്തനങ്ങൾ നൽകുമ്പോൾ**
   A. സ്വാഭാവിക കഴിവുകൾ പരിപോഷിപ്പിക്കും
   B. പഠനപ്രവർത്തനങ്ങളുടെ അനുബന്ധമായിരിക്കും
   C. വിദ്യാർത്ഥികളുടെ കഴിവനനുസരിച്ച് രൂപപ്പെടുത്തും
24. **എന്റെ പ്രവർത്തനങ്ങളിൽ ഞാനെപ്പോഴും മുൻഗണന നൽകുന്നത്**
   A. വ്യക്തിനിഷ്ഠത B. കൃത്യനിഷ്ഠത C. വസ്തുനിഷ്ഠത
26. **ഒരു നാടകം അവതരിപ്പിക്കാൻ അവസരം ലഭിച്ചാൽ ഞാനേറ്റെടുക്കുന്ന ചുമതല**
   A. സംവിധാനം B. അഭിനയം C. തിരക്കഥ
26. **ഞാൻ ഒരു മികച്ച മോഡലായി മറ്റുള്ളവർ കണക്കാക്കുന്നത് എന്റെ**
   A. ചിന്തശൈലിയെയാണ്. B. പ്രവർത്തനശൈലിയെയാണ്
   C. നിരൂപണശൈലിയെയാണ്
27. **എന്റെ പ്രസംഗത്തിലൂടെ ഞാൻ പ്രകടിപ്പിക്കുന്നത്.**
   A. ആശയങ്ങളിലെ പുതുമ B. ക്രമീകൃതമായ അവതരണം
   C. വർത്തമാനകാല അവലോകനം

PART II

ജീവിതത്തിൽ വന്നേക്കാവുന്ന ചില സന്ദർഭങ്ങളാണ് ഓരോ പ്രസ്താവനകളിലും തന്നിരിക്കുന്നത്. ഓരോ സന്ദർഭത്തിലും താങ്കൾ പെരുമാറാൻ സാധ്യതയുള്ള നാല് രീതികൾ A, B, C, D. എന്നീ ഉത്തരങ്ങളായി തന്നിരിക്കുന്നു. അവയിൽ നിങ്ങളെ സംബന്ധിച്ച് **ഏറ്റവും അനുയോജ്യമെന്ന് തോന്നുന്ന പ്രതികരണത്തിന്റെ അക്ഷരം** (A / B / C / D) ചോദ്യത്തിന് നേരെ നൽകിയിരിക്കുന്ന ബോക്സിൽ അടയാളപ്പെടുത്തുക.

1. സ്കൂളിലെ അക്കാദമിക പ്രവർത്തനത്തിന്റെ ഭാഗമായി അടുത്ത ദിവസം പൂർത്തിയാക്കാനായി രേ ാ മൂന്നോ പ്രവർത്തികൾ പ്രധാനാധ്യാപകൻ നിങ്ങളെ എൽപ്പിച്ചാൽ

A. സ്വയം താത്പര്യം തോന്നുന്നത് മാത്രം നന്നായി ചെയ്ത് തീർക്കും.

B എല്ലാം ചെയ്ത് തീർക്കുമെങ്കിലും ഏതേത് ആദ്യം ചെയ്യുമെന്ന് പറയാൻ കഴിയില്ല.

C. പ്രധാന്യത്തിന്റെ ക്രമത്തിൽ ഓരോന്നായി ചെയ്ത് തീർക്കും.

D. കാര്യങ്ങൾ ചിട്ടയായി ചെയ്യുന്നത് യാന്ത്രികമാകയാൽ അവസരത്തിനനുസരിച്ച് തോന്നുന്നത് ചെയ്യുമെന്നേ പറയാൻ പറ്റൂ.

2. ഞാൻ ഒരു കാര്യം തീരുമാനിച്ചാൽ

A. തീരുമാനിച്ചപോലെത്തന്നെ പൂർത്തിയാക്കും

B. നിശ്ചയിച്ചുറപ്പിച്ച പ്രകാരം പൂർത്തിയാക്കാൻ ശ്രമിക്കാറു ്

C. പ്രായോഗികമായ മാറ്റങ്ങളോടെ പൂർത്തിയാക്കും.

D. പലപ്പോഴും അപൂർണ്ണയിൽ ഉപേക്ഷിക്കും.

3. ഞാൻ ചിന്തിക്കുമ്പോൾ

A. ചിന്ത വളരെ വളരെ കേന്ദ്രീകൃതമാണ്

B. ഒരു സമയത്ത് ഒന്നിലധികം കാര്യങ്ങളെകുറിച്ച് ചിന്തിക്കുന്നു.

C വളരെ ക്രമാനുഗതമായി ചിന്തിക്കുന്നു

D. പ്രത്യേക ചിട്ടയില്ലാതെ ചിന്തിക്കുന്നു.

4. പലകാര്യങ്ങൾ അല്പസമയത്തിനുള്ളിൽ ചെയത് തീർക്കേ ിവന്നാൽ

A. എല്ലാം എങ്ങനെയും പൂർത്തിയാക്കാറു ്

B. ഓരോന്നും അൽപാൽപം ചെയ്ത് മുന്നോട്ട് പോകാറു ്.

C കാര്യങ്ങളുടെ മുൻഗണനാക്രമം തീരുമാനിച്ച് ഒന്നൊന്നായി ചെയ്ത് തീർക്കാറു ്.

D. മിക്കതും അപൂർണ്ണതയിൽ ഉപേക്ഷിക്കാറു ്.

5. എനിക്ക് ഒരു പ്രശ്നം നേരിട്ടാൽ

A. അതു തീരുന്നത് വരെ മറ്റു പ്രശ്നങ്ങളെകുറിച്ച് ഓർക്കാറേയില്ല.

B. അതിന്റെ എല്ലാ വശങ്ങളും ഒരേപോലെ പ്രാധാന്യമുള്ളതായി തോന്നാറു ്.

C അതിന്റെ വിവിധവശങ്ങൾ പരിഹാരവുമായി എങ്ങനെ ബന്ധപ്പെട്ടിരിക്കുന്നുവെന്ന് കാണാൻ സാധിക്കാറു ്.

D. ആ പ്രശ്നം പല പ്രശ്നങ്ങളിലേക്ക് ബന്ധപ്പെടുന്നതായി തോന്നാറു ്.

6. ഏത് പ്രശ്നങ്ങളിലും

A. ഏറ്റവും പ്രധാനപ്പെട്ട ചില കാര്യങ്ങളാണ് ഞാൻ ശ്രദ്ധിക്കുന്നത്.

B. നിസ്സാരമെന്ന് തോന്നുന്ന കാര്യങ്ങൾക്കുപോലും ഊന്നൽ നൽകാറു ്.

C. കാര്യങ്ങളെ പ്രാധാന്യമനുസരിച്ച് തരം തിരിക്കാറു ്.

D ഞാൻ ലാഘവത്തോടെ കൈകാര്യം ചെയ്യാറു ്.

7. ചിലപ്രശ്നങ്ങൾ ഒന്നിച്ച് നേരിടേ ിവരുമ്പോൾ

A. പ്രധാനമെന്ന് തോന്നുന്ന ഒന്നിൽ മാത്രം ശ്രദ്ധിക്കും.

B പലതും കൂട്ടമായി പരിഹരിക്കാൻ ശ്രമിക്കും.

C. സങ്കീർണ്ണതകൾ പതുക്കെ ലഘൂകരിച്ചെടുക്കും.

D. ഒന്നിലും ഉറച്ച് നിൽക്കാൻ കഴിയാറില്ല.

8. നിങ്ങളുടെ പ്രശ്നങ്ങൾക്ക് ഒരു പരിഹാരം കെ ത്തി കഴിയുമ്പോൾ.

A. തടസ്സങ്ങളെ തരണം ചെയ്യാൻ സ്വയം കഴിയുമെന്ന് തോന്നും.

B പല തന്ത്രങ്ങൾ കൊ ാണ് എന്ന് തോന്നും.

C. ചിട്ടയായി പ്രവർത്തിച്ചുവെന്ന് തോന്നും.

D. അസാധാരണമായി ചിന്തിച്ചതിനാലാണ് എന്ന് തോന്നും.

9. ഒഴിവ് സമയങ്ങൾ ചെലവഴിക്കുമ്പോൾ

A. വളരെയിഷ്ടപ്പെട്ട ഒരു വിനോദത്തിൽ പൂർണ്ണമായി മുഴുകാറു ്.

B. ഏത് തരം വിനോദങ്ങളിലും ഏർപ്പെടാറു ്.

C. വിനോദങ്ങൾക്ക് ഓരോന്നിനും ഇഷ്ടാനുസരണം സമയം നൽകാറു ്.

D എന്ത് ചെയ്യണമെന്ന് പ്രത്യേക മുൻഗണനയൊന്നുമില്ല

10. തർക്കപരിഹാരം വേ ിരുമ്പോൾ

A. ഏറ്റവും യുക്തമായ ഒരു തീരുമാനമെടുക്കാറു ്.

B. ഒന്നിലേറെ തീരുമാനങ്ങളെടുക്കാറുെ ങ്കിലും പലതും നടപ്പിൽ വരുത്താറില്ല.

C. തീരുമാനങ്ങളെ യുക്തിസഹമായി തരം തിരിക്കാറു ്.

D ഏങ്ങനെ തീരുമാനങ്ങളെടുക്കുമെന്ന് ആശങ്കപ്പെടാറു ്.

11. ഒരു ആശയം പഠിപ്പിക്കേ ിവരുമ്പോൾ

A. ഒരു ആശയത്തിന്റെ മർമ്മ പ്രധാനവശം മാത്രം ഊന്നുന്നു.

B. അതിന്റെ എല്ലാവശങ്ങളും ഒരുപോലെ പ്രാധാന്യമുള്ളതായി തോന്നാറു ്.

C അതിന്റെ വിവിധവശങ്ങളെ പ്രാധാന്യമനുസരിച്ച് പഠിപ്പിക്കാറു ്.

D. ചിട്ടപ്പെടുത്തി പഠിപ്പിക്കാറില്ലെങ്കിലും അവതരണത്തിൽ വ്യത്യസ്തത പുലർത്താറു ്.

12. അധ്യാപനോപകരണങ്ങൾ (Teaching Aids) തെരഞ്ഞെടുക്കുമ്പോൾ

A. ഏറ്റവും അനുയോജ്യമായ അധ്യാപനോപകരണം തെരഞ്ഞെടുത്ത് ഉപയോഗിക്കുന്നു.

B പല അധ്യാപനോപകരണങ്ങൾ പ്രാധാന്യത്തോടെ ഉപയോഗിക്കുന്നു.

C. അധ്യാപനോപകരണങ്ങൾ മുൻഗണനാക്രമത്തിനനുസരിച്ച് ഉപയോഗിക്കുന്നു.

D. ആ പീരിഡിൽ പഠിതാക്കളുടെയും എന്റേയും താത്പര്യാനുസരണം ഉപയോഗിക്കുന്നു.

13. ഉദാഹരണങ്ങൾ ഉപയോഗിക്കുമ്പോൾ

A. ഏറ്റവും അനുയോജ്യമായ ഒരു ഉദാഹരണം തെരഞ്ഞെടുക്കുന്നു.

B. അനുയോജ്യമായ പല ഉദാഹരണങ്ങൾ തെരഞ്ഞെടുക്കുന്നു.

C വിദ്യാർത്ഥികളുടെ നിലവാരത്തിനുസൃതമായ ഉദാഹരണം തെരഞ്ഞെടുക്കുന്നു.

D. ക്ലാസ്സിന്റെ ഒഴുക്കിനനുസരിച്ച് അപ്പോൾ തോന്നിയ ഉദാഹരണം പറയുന്നു.

14. ഞാൻ സഹായങ്ങൾ ചെയ്യുമ്പോൾ

A. എനിക്ക് വളരെ വേ പ്പെട്ടവർക്ക് മാത്രം നൽകും.
B എല്ലാവർക്കും ഒരേപോലെ നൽകും.
C. അർഹരായവർക്ക് മുൻഗണനാക്രമത്തിൽ നൽകും.
D. എന്റെ വൈകാരികാവസ്ഥക്കനുസരിച്ച് നൽകും.

15. എന്റെ ശക്തിയായി ഞാൻ കണക്കാക്കുന്നത്

A. ഒരു ലക്ഷ്യം മാത്രം മുന്നിൽക ് നേടിയെടുക്കാനുള്ള കഴിവ്.
B. ലക്ഷ്യങ്ങളെ മുൻഗണനാക്രമത്തിൽ തരംതിരിച്ച് നേടിയെടുക്കാനുള്ള കഴിവ്.
C ലക്ഷ്യങ്ങളെ ഒരേപോലെ സമീപിച്ച് നേടിയെടുക്കാനുള്ള കഴിവ്.
D. നിയതമായ ലക്ഷ്യങ്ങൾ അസാധ്യമാണെന്ന തിരിച്ചറിവ്.

16. ഞാൻ കുട്ടികളെ പഠിപ്പിക്കുമ്പോൾ

A. ഏറ്റവും അനുയോജ്യമായ ഒരധ്യാപനമാതൃക അവലംബിക്കുന്നു.
B ഒരേ ആശയം പഠിപ്പിക്കാൻ പല അധ്യാപനമാതൃകകൾ അവലംബിക്കുന്നു.
C. ഓരോ വിഭാഗത്തിനും യോജിച്ച അധ്യപനമാതൃകകളുടെ ഒരു ശ്രേണി പാലിക്കുന്നു
D. അധ്യാപകമാതൃകകൾ അധ്യപകന്റെ വിവേചനാധികാരത്തിൽപെടുന്നതാകയാൽ അപ്പപ്പോൾ തോന്നുന്ന മാതൃകകൾ അവലംബിക്കാറു ്.

17. ഞാൻ മറ്റുള്ളവരുമായി ആശയവിനിമയം നടത്തുമ്പോൾ

A. പ്രധാനആശയത്തിന് ഊന്നൽ നൽകുന്നു.
B പലപ്പോഴും ക്രമം തെറ്റിപ്പോകാറു ്.
C. ക്രമത്തിൽ ആശയങ്ങൾ അവതരിപ്പിക്കാറു ്.
D. മിക്കപ്പോഴും ആശയങ്ങൾ കൂടിക്കുഴഞ്ഞ് പോകാറു ്.

18. ഫയലുകൾ സൂക്ഷിക്കുമ്പോൾ

A. വളരെ കണിശമായി ക്രമം പാലിക്കുന്നു.
B. ക്രമത്തിൽ അല്പം അയവ് അനുവദിക്കുന്നു.
C. പ്രായോഗികമായ ഒരു ക്രമം പാലിക്കുന്നു.
D സാധാരണ ഒരു ക്രമവും പാലിക്കാറില്ല.

19. ആനുകാലികങ്ങൾ വായിക്കുമ്പോൾ

A. പ്രാധാന്യമേറിയ മേഖലകൾ മാത്രം വായിക്കാറു ്.
B. പ്രാധാന്യത്തിന്റെ ക്രമമനുസരിച്ച് ഓരോന്നായി വായിക്കാറു ്.
C ശ്രദ്ധ ഒരു ലേഖനത്തിൽ നിന്ന് മറ്റൊന്നിലേക്ക് മാറിപ്പോകാറു ്.
D. വേ വല്ല ലേഖനവും ഉ ങ്കിൽ മാത്രം വായിക്കും.

20. മൂല്യനിർണ്ണയം എന്റെ വീക്ഷണത്തിൽ

A. തീർത്തും നിയതമായ ഉദ്ദേശ്യങ്ങൾക്കനുസരിച്ചായിരിക്കും.
B. ക്രമീകൃതമായ ഉദ്ദേശങ്ങൾ അവലംബിക്കണം.
C. ഉദ്ദേശ്യങ്ങൾ പ്രതിഫലിപ്പിക്കുന്നതായിരിക്കണം.
D. അവശ്യസാഹചര്യങ്ങളിൽ മാത്രം അവലംബിക്കണം.

PART III

ഒന്നൊന്നായി നൽകിയിരിക്കുന്ന ഓരോ സന്ദർഭത്തിലും താങ്കൾ സ്വീകരിച്ചേക്കാവുന്ന രണ്ടു വിപരീത രീതികളാണ് രണ്ട് അഗ്രങ്ങളിലായി തന്നിരിക്കുന്നത്. **സാധരാണയുള്ള താങ്കളുടെ പെരുമാറ്റത്തിന്റെ തീവ്രതയനുസരിച്ച്** A, B, C, D, E എന്നിവയിൽ ഒന്ന് തെരഞ്ഞെടുത്ത് 'X' ഉപയോഗിച്ച് അടയാളപ്പെടുത്തുക.

ഉദാ:

A. ഒരു വ്യക്തിയെ ആദ്യമായി പരിചയപ്പെടുമ്പോൾ വേഷം, പെരുമാറ്റം, ചലനം തുടങ്ങിയവ ഞാൻ

ആകെപ്പാടെ ശ്രദ്ധിക്കാറു	A B C D E	സൂക്ഷ്മമായി ശ്രദ്ധിക്കാറു

A. നിങ്ങൾ ഒരു വ്യക്തിയെ **സാധാരണയായി ആകെപ്പാടെ** ശ്രദ്ധിക്കുന്ന തരക്കാരനാണെങ്കിൽ A B C D E എന്നും

B. നിങ്ങൾ **മിക്കപ്പോഴും** ഒരാളെ **ആകെപ്പാടെ** ശ്രദ്ധിക്കുന്ന ആളാണെങ്കിൽ A B C D E എന്നും

C. **ചിലപ്പോഴൊക്കെ അകപ്പാടെയും ചിലപ്പോഴൊക്കെ സൂക്ഷ്മമായും** ആണ് ശ്രദ്ധയെങ്കിൽ A B C D E എന്നും

D. നിങ്ങൾ **മിക്കപ്പോഴും** വ്യക്തികളെ **സൂക്ഷ്മമായി** ശ്രദ്ധിക്കുന്നയാളാണെങ്കിൽ A B C D E എന്നും

E. നിങ്ങൾ **സാധാരണയായി** ആളുകളെ **സൂക്ഷ്മമായി** നിരീക്ഷിക്കുന്നയാളാണെങ്കിൽ A B C D E എന്നും

അടയാളപ്പെടുത്തുക

1. **ഒരു വ്യക്തിയെ ആദ്യമായി പരിചയപ്പെടുമ്പോൾ വേഷം, പെരുമാറ്റം, ചലനം തുടങ്ങിയവ ഞാൻ**

ആകെപ്പാടെ ശ്രദ്ധിക്കാറു	A B C D E	സൂക്ഷ്മമായി ശ്രദ്ധിക്കാറു

2. **ഞാൻ ക്ലാസ് റൂം അച്ചടക്ക പ്രശ്നങ്ങൾ പരിഹരിക്കാൻ ശ്രമിക്കുമ്പോൾ**

പ്രശ്നങ്ങളുടെ പൊതുവായ വശങ്ങൾക്ക് ഊന്നൽ നൽകും	A B C D E	ഓരോ പ്രശ്നങ്ങൾക്കും പ്രത്യേകമായി ശ്രദ്ധകൊടുക്കും

3. **ഞാൻ പത്രം വായിക്കുമ്പോൾ സാധാരണയായി**

ദേശീയവും അന്തർദേശീയവുമായ വാർത്തകൾക്കായിരിക്കും ഊന്നൽ നൽകുക	A B C D E	പ്രാദേശിക വാർത്തകളിലും അവയുടെ വിശദാംശങ്ങളിലുമായിരിക്കും ഊന്നൽ നൽകുക

4. ക്ലാസ് റൂമിലെ ഗ്രൂപ്പ് പ്രവർത്തനങ്ങളെ വിലയിരുത്തി സംസാരിക്കുമ്പോൾ സാധാരണയായി

ഓരോ ഗ്രൂപ്പിന്റെയും എല്ലാ ആശയങ്ങളേയും പൊതുവായി വിലയിരുത്താറു ്	A B C D E	ഓരോ ഗ്രൂപ്പിലേയും തെരഞ്ഞെടുത്ത ആശയങ്ങളെ വിശദമായി വിലയിരുത്താറു ്

5. ക്ലാസ് റൂമിൽ അച്ചടക്കം നിലനിർത്താൻ ഞാൻ

പൊതുവായ നിർദ്ദേശങ്ങൾ നൽകും	A B C D E	വ്യക്തവും കൃത്യവുമായ നിർദ്ദേശങ്ങൾ നൽകും

6. ക്ലാസ് റൂമിൽ ചോദ്യങ്ങൾ ചോദിക്കുമ്പോൾ ഞാൻ

പെട്ടെന്ന് ഉത്തരം പറയാവുന്ന വ്യക്തമായ ചോദ്യങ്ങൾ ചോദിക്കും	A B C D E	ആലോചിച്ചും ശ്രദ്ധയോടെ വിശകലനാത്മകമായും ഉത്തരം നൽകേ ചോദ്യങ്ങൾ ചോദിക്കും

7. ഞാൻ ഒരു പ്രസംഗം കേൾക്കുമ്പോൾ ശ്രദ്ധിക്കുന്നത്

പ്രാസംഗികനേയും/പ്രസംഗത്തേയും ആകെയാണ്	A B C D E	പ്രസംഗത്തിന്റെ ആശയം / വാദഗതി / ക്രമീകരണം എന്നിവയാണ്

8. നിശ്ചിത സമയത്തിനുള്ളിൽ ഒരു പാഠഭാഗം പഠിപ്പിക്കേ ിവന്നാൽ ഞാൻ

എല്ലാ വസ്തുതകളുടേയും പ്രധാനപ്പെട്ട പൊതുവായ കാര്യങ്ങൾ പഠിപ്പിക്കും	A B C D E	വളരെ പ്രധാനപ്പെട്ട ചില വസ്തുതകൾ മാത്രം എടുത്ത് ആഴത്തിൽ പഠിപ്പിക്കും

9. ഞാൻ കുട്ടികൾ ചെയ്ത ഗൃഹപാഠം (Home work) മൂല്യനിർണയം നടത്തുമ്പോൾ/ വിലയിരുത്തുമ്പോൾ

പ്രധാനമെന്ന് തോന്നുന്ന ഭാഗങ്ങൾ മാത്രം ശ്രദ്ധിച്ച് വായിക്കും	A B C D E	വിവിധ ഭാഗങ്ങൾ പ്രാധാന്യത്തിനനുസരിച്ച് ശ്രദ്ധകൊടുത്ത് വായിക്കാറു ്

10. സ്കൂളിലെ നിരന്തര മൂല്യനിർണയത്തെ ഞാൻ വിലയിരുത്തുന്നത്/കണക്കാക്കുന്നത്.

വിദ്യാർത്ഥികളുടെ പ്രകടനം ആകെപ്പാടെ വിലയിരുത്തിയാണ്	A B C D E	ഓരോ വിദ്യാർത്ഥിയുടേയും ശക്തിയും ദൗർബ്ബല്യവും കണിശമായി വിലയിരുത്തിയാണ്

11. ക്ലാസ് റൂമിലെ എന്റെ അധ്യാപന രീതിയിൽ

മികച്ച അധ്യാപനരീതികളുടെ പ്രധാന ഘടകങ്ങൾ അവലംബിക്കാറു ്	A B C D E	വളരെ അനുയോജ്യമായ ഒരധ്യാപന രീതി സൂക്ഷ്മമായി അവലംബിക്കാറു ്

12. സഹായങ്ങൾ നൽകുമ്പോൾ ഞാൻ

ഓർമ്മയിൽ വരുന്നവരേയും ചോദിച്ച് വരുന്നവരേയും പരിഗണിക്കും	A B C D E	അർഹതപ്പെട്ടവരെ പ്രത്യേകമായി കത്തി പരിഗണിക്കും

13. വിദ്യർത്ഥികളുടെ മുമ്പിൽ ഒരു വിഷയം ആദ്യമായി അവതരിപ്പിക്കുമ്പോൾ

ആശയങ്ങളെ പരസ്പരം ബന്ധിപ്പിക്കുകയും സംക്ഷിപ്തം അവതരിപ്പിക്കുകയും ചെയ്യുന്നു	A B C D E	പ്രധാനപ്പെട്ട ആശയങ്ങളെ വിശകലനാത്മകമായി അവതരിപ്പിക്കുന്നു

14. വിദ്യാർത്ഥികളുടെ പഠന നിലവാരവുമായി ബന്ധപ്പെട്ട കാര്യങ്ങൾ PTA മീറ്റിംഗിൽ ചർച്ചചെയ്യുമ്പോൾ

രക്ഷിതാക്കൾ ശ്രദ്ധിക്കേ കാര്യങ്ങൾ പൊതുവായി പറയും	A B C D E	രക്ഷിതാക്കൾ പ്രത്യേകം ശ്രദ്ധിക്കേ കാര്യങ്ങൾ വിശദമായി അക്കമിട്ട് പറയും

15. ഒരു പിരീഡിൽ പഠിപ്പിച്ച കാര്യങ്ങൾ

മിക്കപ്പോഴും ഒന്നോ രേ ാ വാചകത്തിൽ സംഗ്രഹിക്കാറു ്	A B C D E	പ്രധാനാശയങ്ങളെല്ലാം ആവർത്തിച്ച് കൊ ുള്ള സംഗ്രഹം നടത്താറു ്

PART IV

ഒന്നൊന്നായി നൽകിയിരിക്കുന്ന ഓരോ സന്ദർഭത്തിലും താങ്കൾ സ്വീകരിച്ചേക്കാവുന്ന ര ു വിപരീത രീതികളാണ് ര ് അഗ്രങ്ങളിലായി തന്നിരിക്കുന്നത്. **സാധരാണയുള്ള താങ്കളുടെ പെരുമാറ്റത്തിന്റെ തീവ്രതയനുസരിച്ച്** A, B, C, D, E എന്നിവയിൽ ഒന്ന് തെരഞ്ഞെടുത്ത് 'x' ഉപയോഗിച്ച് അടയാളപ്പെടുത്തുക.

1. വളരെ പരിചിതമല്ലാത്ത ഒരു ഗ്രൂപ്പിൽ സാധാരണയായി

സംസാരിക്കാറാണ് പതിവ്	A B C D E	സംസാരം കേട്ടിരിക്കുകയാണ് പതിവ്

2. സ്കൂളിന്റെ പുരോഗതിക്കായി ഉപയോഗപ്പെടുത്തേ എന്റെ കഴിവായി ഞാൻ കണക്കാക്കുന്നത്

എന്റെ നേതൃപാടവം	A B C D E	എന്റെ ആസൂത്രണ പാടവം

3. കായിക മത്സരങ്ങളിൽ പങ്കെടുക്കുമ്പോൾ ഞാൻ

ടീമിലേ മറ്റുള്ളവരെ സ്വാധീനിക്കുന്ന സ്ഥാനം ഇഷ്ടപ്പെടുന്നു	A B C D E	വ്യക്തിഗത മികവിലൂടെ ടീമിനെ പിന്തുണക്കാൻ ഇഷ്ടപ്പെടുന്നു

4. വിദ്യാർത്ഥികളുടെ പഠനപുരോഗതി രക്ഷിതാക്കളുമായി പങ്കുവെക്കുമ്പോൾ

രക്ഷിതാക്കളെ ഓരോരുത്തരേയും തൃപ്തിപ്പെടുത്താറു ്	A B C D E	സമീപിക്കുന്ന രക്ഷിതാക്കളോട് വിശദമായി സംസാരിക്കാറു ്

5. തൊഴിൽപരമായ മികവ് ആർജിക്കുന്നതിൽ ഞാൻ ഊന്നൽ നൽകുന്നത്

കൂട്ടായ്മകളിലൂടെയും സഹകരണത്തിലൂടെയും ആർജിക്കേ ശേഷികളാണ്	A B C D E	കഠിനാദ്ധ്വാനത്തിലൂടെയും ആത്മപരിശോധനയിലൂടെയും ആർജിക്കേ ശേഷികളാണ്

6. മറ്റുള്ളവരുടെ പ്രശ്നങ്ങളിൽ പൊതുവെ

ഇടപെടലും പരിഹരിക്കലു മാണ് എന്റെ രീതി	A B C D E	വളരെ അനിവാര്യമെങ്കിൽ മാത്രം ഇടപെടലാണ് എന്റെ രീതി

7. പഠനാനുഭവങ്ങൾ ലക്ഷ്യം വെക്കേ തായി ഞാൻ കാണുന്നത്

ലോകത്തെ അറിയാനുള്ള പഠനാനുഭവങ്ങൾ	A B C D E	സ്വത്വത്തെ മനസ്സിലാക്കാ നുള്ള പഠനാനുഭവങ്ങൾ

8. സ്കൂളിലെ കലോൽസവവുമായി ബന്ധപ്പെട്ട ഒരു കമ്മിറ്റിയിൽ അംഗമായാൽ ഞാൻ

കമ്മിറ്റിയിലെ മറ്റംഗങ്ങളു മായി ചേർന്ന് ഉത്തരവാ ദിത്തം ചെയ്ത് തീർക്കും	A B C D E	എന്നെ ഏൽപ്പിച്ച ഉത്തരവാ ദിത്തം നന്നായി ചെയ്ത് തീർക്കും

9. ഞാൻ ഒരാശയം പഠിപ്പിക്കുമ്പോൾ

മറ്റുവിഷയങ്ങളിലെ സമാന ആശയങ്ങളുമായി അതിനെ ബന്ധപ്പെടുത്താറു ്	A B C D E	ആശയത്തിന്റെ വ്യാപ്തി നിലനിർത്തികൊ ് തന്നെ വിഷയത്തിൽനിന്നം വ്യതിച ലിക്കാതെ സൂക്ഷിക്കാറു ്.

10. വൈവിധ്യത പുലർത്തുന്ന ആശയങ്ങൾ പഠിപ്പിക്കേ ിവരുമ്പോൾ ഞാൻ

സംഘബോധനത്തിൽ (Team Teaching) ഒരംഗ മായി പഠിപ്പിക്കാൻ ഇഷ്ട പ്പെടുന്നു	A B C D E	വ്യത്യസ്ത അധ്യാ പനനൈപുണി (Teaching Skill) കളിയിലൂടെയുള്ള ബോധനത്തെ ഇഷ്ടപ്പെ ടുന്നു

11. പ്രോജക്ടുകളിൽ ഞാൻ ഇഷ്ടപ്പെടുന്നത്

ഗ്രൂപ്പ് പ്രോജക്ടുകളാണ്	A B C D E	വ്യക്തിഗത പ്രോജക്ടുക ളാണ്

12. ഞാൻ ക്ലാസ്സ്റൂമിൽ പ്രശംസിക്കുകയോ/ഗുണദോഷിക്കുകയോ ചെയ്യുമ്പോൾ മാന ദണ്ഡമാക്കുന്നത്

വിദ്യാർത്ഥിയെയാണ്	A B C D E	പ്രവർത്തിയെയാണ്

13. എന്റെ വീക്ഷണത്തിൽ ഒരു പാഠ്യപദ്ധതിയിലൂടെ കുട്ടി ആർജിച്ചെടുക്കേ മികച്ച ഗുണം

സമൂഹത്തിലൂടെയുള്ള വ്യക്തിയുടെ വികാസം	A B C D E	വ്യക്തിയിലൂടെയുള്ള സമൂ ഹത്തിന്റെ വികാസം

14. സ്കൂളിൽ നടത്തിയ ഒരു പ്രോഗ്രാമിനെ സംബന്ധിച്ച് അധ്യാപകർക്കിടയിൽ അഭി പ്രായവ്യത്യാസമു ായാൽ

ഇടപെടലും പരിഹരിക്കലു മാണ് എന്റെ രീതി	A B C D E	പൊതുവെ ഇത്തരം കാര്യങ്ങ ളിൽനിന്ന് വിട്ട് നിൽക്കലാണ് എന്റെ രീതി

15. സാമൂഹിക ക്ഷേമത്തിന്റെ (Social welfare) മികച്ച ഉപാധിയായി ഞാൻ കണക്കാ ക്കുന്നത്

ഏകോപിപിക്കലും സംഘടി പ്പിക്കലും	A B C D E	ഭൗതിക പിന്തുണ നൽകി യുള്ള സഹകരണം

PART V

ഒന്നൊന്നായി നൽകിയിരിക്കുന്ന ഓരോ സന്ദർഭത്തിലും താങ്കൾ സ്വീകരിച്ചേക്കാവുന്ന ര ു വിപരീത രീതികളാണ് ര ് അഗ്രങ്ങളിലായി തന്നിരിക്കുന്നത്. **സാധരാണയുള്ള താങ്കളുടെ പെരുമാറ്റത്തിന്റെ തീവ്രതയനുസരിച്ച്** A, B, C, D, E എന്നിവയിൽ ഒന്ന് തെരഞ്ഞെടുത്ത് 'x' ഉപയോഗിച്ച് അടയാളപ്പെടുത്തുക.

1. നിലവിലുള്ള ചട്ടങ്ങൾക്കതീതമായി അധ്യാപനം നടത്താൻ സ്കൂളിൽ പ്രധാനധ്യാപകൻ പരിപൂർണ്ണ സ്വാതന്ത്ര്യം അനുവദിക്കുകയാണെങ്കിൽ

സ്ഥിരമായി പ്രയോഗിക്കുന്ന അധ്യാപന രീതികൾ അവലംബിക്കും	A B C D E	വൈവിധ്യമാർന്ന രീതികൾ അവലംബിക്കും

2. ഞാൻ വസ്ത്രങ്ങൾ വാങ്ങിക്കുമ്പോൾ

പതിവായി ഉപയോഗിക്കുന്നവയോട് യോജിച്ചവ തെരഞ്ഞെടുക്കും	A B C D E	വ്യത്യസ്തത പുലർത്തുന്നവ തെരഞ്ഞെടുക്കും

3. എന്റെ ക്ലാസിലെ കുട്ടികളുടെ അച്ചടക്കവുമായി ബന്ധപ്പെട്ട പ്രശ്നങ്ങൾ കൈകാര്യം ചെയ്യേ ിവരുമ്പോൾ

നിലവിലുള്ള രീതികളും മാനദണ്ഡങ്ങളും പാലിക്കും	A B C D E	വ്യത്യസ്തമായതും പുതുമായുള്ളതുമായ രീതികൾ പരീക്ഷിക്കും

4. ഞാൻ പഠിപ്പിക്കുന്ന വിഷയത്തിൽ കുട്ടികൾക്ക് മാർക്ക് കുറയുകയാണെങ്കിൽ

നിലവിലെ അധ്യാപന രീതി മെച്ചപ്പെടുത്താൻ ശ്രമിക്കണം	A B C D E	കൂടുതൽ മെച്ചപ്പെട്ട അധ്യാപന രീതിഅലവംബിക്കും

5. ഒരു പുതിയ ആശയം കുട്ടികളുടെ മുമ്പിൽ അവതരിപ്പിക്കുമ്പോൾ

കൈപുസ്തക (Hand book) ൽ പറഞ്ഞ രീതികൾ അവലംബിക്കും	A B C D E	എന്റെതായ രീതിയിൽ പുതുമയോട് കൂടി അവതരിപ്പിക്കും

6. ഞാൻ ക്ലാസിൽ കുട്ടികൾക്ക് പ്രബലനം (Reinforcement) നൽകുമ്പോൾ

സാധാരണ രീതികൾ ഉപയോഗിക്കും	A B C D E	പുതുമയാർന്ന രീതികൾ ഉപയോഗിക്കും

7. ഞാൻ ക്ലാസിൽ പാഠഭാഗങ്ങൾ വിശദീകരിക്കുമ്പോൾ

വ്യക്തതയോടെ ഔപചാരികമായി വിശദീകരിക്കും	A B C D E	വൈവിധ്യമാർന്ന രീതിയിൽ പുതുമയോടെ അവതരിപ്പിക്കും

8. ക്ലാസ് റൂമിൽ തീരുമാനങ്ങൾ എടുക്കേ ിവരുമ്പോൾ

നിലവിലുള്ള പരീക്ഷിച്ച് വിജയിച്ച തീരുമാനങ്ങൾ പിന്തുടരും	A B C D E	ചട്ടങ്ങൾക്കതീതമായ സ്വതന്ത്രമായ തീരുമാനങ്ങൾ പിന്തുടരും

9. വിദ്യാത്ഥികളുമായുള്ള ഇടപെടലുകളിൽ ഞാൻ

സ്വാഭാവികമായ/ആവശ്യമായ നിയന്ത്രണങ്ങൾ എർപ്പെടുത്തും	A B C D E	നിയന്ത്രണങ്ങൾ പരമാവധി ലഘൂകരിക്കും

10. എന്റെ ദിനചര്യയിൽ വരുന്ന മാറ്റങ്ങൾ

അധ്യാപനത്തെ സാരമായി ബാധിക്കാറു ്	A B C D E	മാറ്റങ്ങൾക്കനുസൃതമായി അധ്യാപനത്തെ മുന്നോട്ട് കൊ ് പോകാൻ കഴിയാറു ്

11. പഠനാസൂത്രണരേഖ (Lesson Plan) തയ്യാറാക്കുമ്പോൾ ഞാൻ

അതിനനുസരിച്ച് ക്ലാസെടുക്കണമെന്ന് ആഗ്രഹിക്കാറു ്	A B C D E	അതിനുമപ്പുറത്തേക്ക് സാഹചര്യങ്ങൾക്കുസരിച്ച് വ്യത്യസ്തത പുലർത്തി ക്ലാസെടുക്കണമെന്ന് ആഗ്രഹിക്കാറു ്

12. ഞാൻ ഒരു പ്രോജക്ടിന്റെ വിഷയം കുട്ടികൾക്ക് നൽകുമ്പോൾ

പാഠഭാഗത്തിലുൾപ്പെട്ടതോ അതിനനുബന്ധമായതോ നൽകും	A B C D E	വിഷയവുമായി ബന്ധപ്പെട്ടതും പ്രസക്തവുമായ ഒന്ന് പാഠഭാഗത്തിലില്ലെങ്കിൽ പോലും നൽകും

13. പാഠ്യപദ്ധതി ചട്ടക്കൂട്ടിലെ (Curriculum frame work) നിർദ്ദേശങ്ങളും ചട്ടങ്ങളും ഞാൻ

അതേപടി പാലിക്കുന്നു	A B C D E	യുക്തമെന്ന് തോന്നുന്ന വ്യതിയാനങ്ങൾ പരീക്കുന്നു

14. ഒരു ചടങ്ങിൽ അതിഥിയായി പങ്കെടുത്ത് ഭക്ഷണം കഴിക്കുമ്പോൾ ഞാൻ

എന്റെ സ്ഥിരം വിഭവങ്ങൾ മാത്രം കഴിക്കും	A B C D E	വൈവിധ്യമാർന്ന പുതുമയുള്ള വിഭവങ്ങൾ പരീക്ഷിക്കും

15. ഞാൻ ആസ്വദിക്കാനിഷ്ടപ്പെടുന്ന സംഗീതം

പഴയകാല ചലച്ചിത്ര ഗാനങ്ങളാണ്	A B C D E	പുതിയ ചലച്ചിത്രഗാനങ്ങളാണ്

16. എന്നെ സ്വാധീനിച്ച എഴുത്തുകാർ

മൗലികമായ ചട്ടകൂടിൽനിന്നുകൊ ് ഉദാത്തമായ സൃഷ്ടികൾ നടത്തുന്നവരാണ്	A B C D E	സമകാലിക ജീവിതയാഥാർത്ഥ്യങ്ങളെ കാലികമായി ആവിഷ്ക്കരിക്കുന്നവരാണ്

17. സ്കൂളിലെ നിയമങ്ങളേയും ചട്ടങ്ങളേയും ഞാൻ വിലയിരുത്തുന്നത്

കൃത്യമായും വ്യക്തമായും പാലിക്കപ്പെടേ തെന്ന നിലയിലാണ്	A B C D E	സന്ദർഭത്തിനും, കാലത്തിനുമനുസരിച്ചുള്ള ഭേദഗതികൾ ആവശ്യമാണെന്ന നിലയിലാണ്

Appendix B2
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
THINKING STYLE INVENTORY ENGLISH [DRAFT]

Dr. K. Abdul Gafoor — Associate Professor
Haskar Babu. U. — Research Scholar

Name..... Subject:.....

Sex : Male / Female Age : 20 - 25 / 26 - 30 /30 above

Teaching Experience : Educational Qualification:
College / University :

The Thinking Style Inventory consists of statements for understanding your thinking style. The statements are divided into five parts. Mark your response only after reading carefully the instructions given in each part.

Part I

In Part I, some situations in daily life are given in each statement. Three possible choices /options A/B/C are given. Choose a response that is most suitable for you for each situation, and write it in the box provided on the right side for each statement.

1. While taking decisions I look for
A. novelty B. practicability
C. searching for value

2. While choosing my profession
A. searching novelty B. searching practicability
C. searching reasonability

3. When I read, I usually
A. try to conclude ideas B. try to regulate ideas
C. try to understand the writer's views

4. When I Build home, I
A. create uniqueness
B. depend on existing style
C. include good aspects and avoid bad aspects of different houses

5. When I converse with, I usually
A. try to convey my view point to the listener
B. following rules of conversation, tries to convince others
C. analyzing the ideas of listeners.

6. My interest in taking responsibilities in group activities
A. to plan activities and tasks
B. to act in accordance with the plan
C. to improve the activities

7. Education must give more emphasis on the students
A. Creativity B. Efficiency C. analytical skill

8. For realization of life, one should have skill in
A. planning B. execution. C analysis

9. In my opinion , the leaders should achieve
A. creative leadership B. constructive leadership
C. analytical leadership

10. I convey in meetings
A. variety of ideas B. practical instructions
C. clever decisions

11. In my opinion, the most important principle of success is
A. self initiation B. hard work C. Self examination

12. I try to ……. my abilities
A. identify B. Utilize
C. Evaluate

13. The best quality I consider in myself is
A. Skill in planning B. Sense of responsibility
C. Sense of Value

14. The best quality of knowledge
A. novelty B. Planning C. Factual

15. The most valuable mode of thinking is
A. Divergent Thinking
B. Convergent Thinking
C. Critical Thinking

16. I am generally referred to by others as a person with
A. varied ideas B. person with sense of responsibility
C. sound judgment

17. In my view the syllabus of the students
A. foster the self learning ability
B. foster the ability based on aims
C. encourage the analytical skills

18. The means I use to maintain discipline in the classroom
A. varied teaching methods B. clear guidelines
C. rational analysis based on cause and effect

19. In my opinion, the staff meeting in the school should
A. try to enforce creative and independent instructions
B. try to enforce the activities according to the rules and regulations of the school
C. try to evaluate critically the school activities.

20. After reading a book/article, I
A. get some new ideas in mind/thought
B. remember the important ideas
C. evaluate the content and ideas

21. I expect in the question answers with the students
A. their own ideas
B. precise and clear response
C. rational and enlightened response

22. I give emphasis on lesson planning

A. variety learning activities of their own style
B. learning objectives of the course
C. frame the syllabus according to the students

23. When I give co-curricular activities

A. foster the innate abilities
B. extension of learning activities
C. frame according to students abilities

24. I always give preferences in my activities

A. individuality. B. Punctuality C. Factuality

25. When I get a chance to perform a drama, I prefer

A. direction B. acting C. screen play

26. People see me as a role model in my

A. mode of thinking B. mode of working
C. mode of judgment

27. I express through my discourse / speech

A. novelty in ideas B. systematic presentation
C. analysis of current affairs.

PART II

In Part II, some situations in daily life are given in each statement. Four possible choices /options A/B/C/D are given as answers. Choose a response that is most suitable for you for each situation and write it in the box given on the right side for each statement.

1. If I am assigned to do two or three activities for the next day as a part of academic activities in school, I will

A. complete the most interested activity only
B complete all activities, but cannot determine the order
C. complete all work as per importance
D. do things as per circumstances because doing things systematically is a mechanical process

2. If I decide to do something, I will

A. complete it as decided
B. try to complete as per decision
C. complete with practical changes
D. often discard it in an incomplete manner

3. When I think, it will be

A. centralized B. more than one matter at a time
C systematic D. without special order

4. If I have to complete different things within a short time, I will

A. complete all things in any way
B. go ahead by doing each activity bit by bit
C complete things as per priority
D. leave almost all things incomplete

5. If I face a problem, I

A. do not think about other problems , until I solve it
B. feel all aspects of the problem as equally important
C understand how the various aspects of the problem are related with solution
D. feel this problem relates to other problems.

6. In any problem, I

A. focus only on important matters
B. focus even minute aspects
C. classify matters according to importance
D handle things with ease

7. When I have to face certain problems simultaneously, I

A. attend the problem that seems to be important
B try to solve all problems collectively
C. simplify the complexities gradually
D. cannot take a firm stance

8. Once you solve your problems, you feel

A. the ability to overcome the obstacles
B used different strategies
C. acted systematically
D. thought in a different way

9. When I spend the leisure time, I will

A. engage in a most favourite hobby
B. engage in any type of hobby
C. keep apart required time to each type of hobby
D do not give any priority to what has to be done

10. During the time of settling disputes, I will

A. take most reasonable decision
B. take more than one decision, but most are not implemented
C. classify the decisions in a reasonable way
D be concerned about how to take the decisions

11. When I teach a concept, I

A. will give emphasis to the cardinal aspect only
B. feel all aspects of the concept are equally important
C will teach different aspects of the concept as per importance.
D. keep diversity in presentation, even though not teaching in a systematic way

12. While selecting teaching aids, I use

A. most appropriate one
B different teaching aids according to its importance
C. in an order of priority
D. in accordance with the interests of students and myself

13. While using examples, I select

A. the most appropriate example
B. many appropriate examples
C as per the standard of students
D. example according to the demands of classroom situation

14. While I give help

A. consider who are most favourite to me
B consider all in an equal way
C. give those who deserve by priority
D. give as per emotional condition

15. I consider that my strength is the

A. ability to attain a particular objective
B. ability to face and achieve objectives in an order of priority
C. ability to face and attain aims in the same way
D. realization that attainment of definite aims is impossible

16. When I teach children, I adopt

A. most appropriate teaching method
B different methods to teach a single idea
C. keeps an hierarchy which is suitable to each group
D. uses teaching method according to the context as it is related to the discretion of teacher

17. While communicating with others

A. focus on main idea
B sometimes becomes out of order
C. often presents ideas in an order
D. often ideas overlap with others

18. While maintaining files

A. follows the order strictly
B. allows a little flexibility in the order
C. follows a practical order
D generally do not follow any order

19. While reading periodicals, I

A. read important areas only
B. read articles in an order of relevance
C. experience deviating attention from one article to another
D. read only if there is any important article

20. In my opinion, evaluation must be

A. in accordance with definite objectives
B. adopt systematic objectives
C. reflect objectives
D. adopt only if the situation demands

PART III

A few statements are provided below in relation to usual daily life situations. The two possible extreme behaviours that you might choose in each of those situations are placed at the two ends of the continuum. The continuum is divided into five intervals as A, B, C, D and E. Please put an "X" mark on any of the intervals of your choice.

Eg,

A. When I first meet a person, the appearence, behaviour and movements are

Observed totally	A B C D E	Noticed closely

A. If you usually pay attention to the person in a casual manner, do — A B C D E — or

B. If you occasionally pay attention to the person in a casual manner,do — A B C D E — or

C. If you usually pay attention to the person in a casual manner, but occasionally very vigilantly, do — A B C D E — or

D. If you occasionally pay attention to the person very vigilantly, do — A B C D E — or

E. If you usually pay attention to the person very vigilantly do — A B C D E

Please follow the same pattern for responding **PART IV** and **PART V**.

1. When I first meet a person, the appearence, behaviour and movements are

Observed totally	A B C D E	Noticed closely

2. when I try to solve disciplinary problems in the classroom

Give emphasis to common aspects of the problem	A B C D E	Give attention to each problems specifically

3. Usually when I read newspaper

Give importance to national and international news	A B C D E	Give importance to regional news with details

4. Usually when I speak evaluating the group activities in the classroom

Evaluate generally all the ideas of each and every group	A B C D E	Evaluate clearly the selected ideas of each group

5. To maintain discipline in the classroom

Give general instructions	A B C D E	Give clear and exact instructions

6. When I ask questions in the classroom

Ask clear questions that should be answered quickly	A B C D E	Ask questions that should be answered carefully after thinking and analyzing

7. When I hear a speech I give attention to

Speaker/speech as a whole	A B C D E	Speaker's ideas/arguments/planning

8. If I committed to teach a lesson within a time period

Teach the important general matters of all facts	A B C D E	Teach some important ideas deeply

9. When I evaluate the homework of students

Read carefully only important parts	A B C D E	Read carefully different parts in accordance with importance

10. I consider the continuous evaluation in school by

Evaluating the students'performance as a whole	A B C D E	Evaluating strictly each and every student's strength and weakness

11. my teaching methods in the classroom

Adopt important elements of excellent teaching model	A B C D E	Adopt carefully on the most suitable teaching model

12. When I do/give help

Consider both those who need help and those who seek help	A B C D E	Consider those who are very deserving

13. When I first introduce a topic in front of students

Present the ideas in brief and connect it mutually	A B C D E	Present the important matters analytically

14. While discussing the students' academic performance in a PTA meeting

Mention the common matters that parents should take care of	A B C D E	Matters that the parents should take care of will mention one by one

15. The content which is taught in a period

Most of the time summarize in one or two sentences	A B C D E	Summarize repeating all the important ideas

PART IV

1. Usually in an unfamiliar group

Speak regularly	A B C D E	Hear the speaking regularly

2 I consider my abilities for the achievement of school

My leadership skill	A B C D E	My planning efficiency

3. When I participate in sports competitions

I like position influencing others	A B C D E	I like to support the team through individual ability

4. When I share the students learning achievements with their parents

Satisfy each and every parent	A B C D E	Speak clearly to the parents who approach me

5. I give emphasis to obtain occupational excellence

The skill which are acquired through cooperation and unity	A B C D E	The skill which are acquired through effort and self-examination

6. Generally, in the problems of others

My method is interference and solving	A B C D E	My method is interference only if it is necessary

7. I consider the learning experience should aim at

The learning experience to know the world	A B C D E	The learning experience to understand one's own individuality

8. If I am the member of a committee related to the school festival

Do the responsibility jointly with other members in the committee	A B C D E	Do the responsibility assigned to me in the most efficient manner

9. When I teach an idea

Connect it with similar ideas in other subjects	A B C D E	Maintain the depth of idea,without deviating from the subject

10. When I teach variety of ideas

I like to teach as one of the members in team teaching	A B C D E	I like to teach through different teaching skills

11. I like in the projects

Group projects	A B C D E	Individual projects

12. When I praise or advice in the classroom,the criteria I follow

Of the students	A B C D E	Of the ctivity

13. In my view, the best quality which has to be acquired by the students through the curriculum

Individual development through society	A B C D E	Social development through individual

14. If there is a different opinion among the teachers regarding a programme conducted in the school

My method is interference and solving	A B C D E	My method is to abstain from the matters usually

15. I consider the best way of social welfare

Organizing and coordinating	A B C D E	Co-operation by giving physical support

PART V

1. If the headmaster permits the complete freedom for teaching beyond the existing rules

adopt the usual teaching methods	A B C D E	Adopt diverse methods

2. When I purchase clothes

Choose the suitable clothes as usual	A B C D E	Choose variety clothes

3. Dealing with classroom disciplinary problems

Maintain the existing rules and norms	A B C D E	Experiment with various and novel methods

4. If the students get low marks in my subject

Try to improve the existing teaching methods	A B C D E	Adopt more effective teaching methods

5. When I present a new idea in front of students

Follow the methods described in handbook	A B C D E	Present in my own way with novelty

6. When I give reinforcement to students in my class

Use the usual methods	A B C D E	Use the novel methods

7. When I explain the lessons in the class

Formally explain with clarity	A B C D E	Present in different ways with novelty

8. When taking decisions in the classroom

Follow the existing decisions experimented successfully	A B C D E	Follow the independent decisions beyond the rules

9. While interacting with students, I

Implement necessary control	A B C D E	Lessen control at maximum

10. The changes in my daily routine

Deeply affect the teaching	A B C D E	directs the teaching in accordance with the changes

11. When I prepare lesson plan

Want to take class as such	A B C D E	Want to take class diversely as per situation beyond lesson plan

12. When I give a project topic to students

Give content related or supplementary	A B C D E	Give the topic even if not related with content, but related with subject

13. The norms and rules in the curriculum framework

Obey as itself	A B C D E	Experiment with suitable changes

14. When I have food in a function as a guest

Follow the usual diet	A B C D E	Experiment with variety dishes

15. The music which I enjoy

Old film songs	A B C D E	New film songs

16. The writers who influence me

Do real works by standing radical frame work	A B C D E	Express contemporary real life situation

17. I evaluate the rules and regulations in school

Must be observed accurately and clearly	A B C D E	Amendments may be needed in accordance with situation and time

Appendix B3
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
THINKING STYLE INVENTORY-MALAYALAM [Final]

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താങ്കളുടെ ചിന്താരീതി മനസ്സിലാക്കുന്നതിനുവേ ിയുള്ള ചില പ്രസ്താവന കളാണ് താഴെ നൽകിയിരിക്കുന്നത്. പ്രസ്താവനകളെ അഞ്ച് ഭാഗങ്ങളായി തിരിച്ചിരിക്കു ന്നു. ഓരോ ഭാഗത്തിനും നല്കിയ നിർദ്ദേശങ്ങൾ ശ്രദ്ധിച്ചുവായിച്ചതിനുശേഷം മാത്രം പ്രതികരണം രേഖപ്പെടുത്തുക.

PART I

ഭാഗം ഒന്നിൽ നിത്യജീവിതത്തിലെ ചില സന്ദർഭങ്ങളാണ് ഓരോ പ്രസ്താവനക ളിലും തന്നിരിക്കുന്നത്. ഓരോ സന്ദർഭത്തിലും താങ്കൾ പെരുമാറാൻ സാധ്യതയുള്ള മൂന്ന് രീതികൾ A, B, C. എന്നീ ഉത്തരങ്ങളായി നൽകിയിട്ടു ്. ഓരോ സന്ദർഭത്തിനും അനുയോജ്യമായ പ്രതികരണം രേഖപ്പെടുത്താൻ വലതുവശത്തായി ഒരു ചതുരം (□) നൽകിയിട്ടു ്. **നിങ്ങളെ സംബന്ധിച്ച് ഏറ്റവും അനുയോജ്യമെന്ന് തോന്നുന്ന പ്രതികരണത്തിന്റെ അക്ഷരം** (A / B / C) ചോദ്യത്തിനുനേരെ നൽകിയിരിക്കുന്ന ബോക്സിൽ എഴുതുക.

1. **ഞാൻ വീട് ഉ ാക്കിയപ്പോൾ/ഉ ാക്കുമ്പോൾ**
   - A. വ്യത്യസ്തതയുള്ളത് ചെയ്യുന്നു.
   - B. പ്രചാരത്തിലുള്ള രീതി അവലംബിക്കുന്നു.
   - C. പല വീടുകളുടേയും നല്ല അംശങ്ങൾ ഉൾക്കൊള്ളിച്ചും ദോഷവശങ്ങൾ ഒഴിവാക്കിയും ചെയ്യുന്നു.
2. **വിദ്യാഭ്യാസം കൂടുതൽ ഊന്നൽ നൽകേ ത് വിദ്യാർത്ഥിയുടെ**
   - A. സർഗ്ഗാത്മകത B. പ്രവർത്തനക്ഷമത
   - C. വിശകലനാക്ഷമത
3. **മീറ്റിംഗുകളിൽ ഞാൻ നൽകുന്നത്**
   - A. വൈവിധ്യമാർന്ന ആശയങ്ങൾ B. പ്രായോഗികമായ നിർദ്ദേശങ്ങൾ
   - C. യുക്തിഭദ്രമായ തീരുമാനങ്ങൾ
4. **എന്റെ അഭിപ്രായത്തിൽ ഏറ്റവും പ്രധാനപ്പെട്ട വിജയതത്വം**
   - A. സ്വയം പ്രവർത്തനം B. കർമ്മോത്സുകത C. ആത്മപരിശോധന
5. **എന്റെ പ്രധാനഗുണമായി ഞാൻ കണക്കാക്കുന്നത്**
   - A. ആസൂത്രണബോധം B. ഉത്തരവാദിത്തബോധം
   - C. മൂല്യബോധം
6. **അറിവിന്റെ ഏറ്റവും നല്ല ഗുണം**
   - A. പുതുമ B. ക്രമീകരണം C. വസ്തുനിഷ്ഠത
7. **കൂടുതൽ മൂല്യവത്തായ ചിന്താരീതി**
   - A. വിവ്രചനചിന്ത (വികേന്ദ്രികൃത) (Divergent Thinking)
   - B. കേന്ദ്രീകൃത/കേന്ദ്രാഭിമുഖചിന്ത (Convergent Thinking)
   - C. വിമർശനാത്മകചിന്ത

8. **എന്റെ വീക്ഷണത്തിൽ പാഠ്യപദ്ധതി വിദ്യാർത്ഥികളുടെ**
   A. സ്വയം പഠനശേഷിയെ പരിപോഷിപ്പിക്കണം
   B. കഴിവിനെ ഉദ്ദേശാധിഷ്ഠിതമായി പരിപോഷിപ്പിക്കണം.
   C. അവലോകനക്ഷമത പ്രോത്സാഹിപ്പിക്കണം.
9. **ക്ലാസ്റൂമിൽ അച്ചടക്കം നിലനിർത്താൻ ഞാൻ ഉപയോഗിക്കുന്ന മാർഗ്ഗം**
   A. വൈവിധ്യങ്ങളായ പഠനരീതികൾ
   B. വ്യക്തമായ മാർഗ്ഗനിർദ്ദേശങ്ങൾ
   C. കാര്യകാരണത്തോടെയുള്ള വിശകലനം
10. **ഞാൻ ഒരു ലേഖനമോ, പുസ്തകമോ വായിച്ച് കഴിഞ്ഞാൽ**
   A. പുതിയ ചില ആശയങ്ങൾ ചിന്തയിൽ വരാറു ്.
   B. പ്രധാന ആശയങ്ങൾ ഓർത്തുവെക്കാറു ്.
   C. ഉള്ളടക്കവും സാരാംശവും വിലയിരുത്താറു ്.
11. **വിദ്യാർത്ഥികളുമായുള്ള ചോദ്യോത്തരങ്ങളിൽ ഞാൻ പ്രതീക്ഷിക്കുന്നത്**
   A. അവരുടേതായ ആശയങ്ങൾ.
   B. കൃത്യതയുള്ള സ്പഷ്ടമായ പ്രതികരണങ്ങൾ
   C. യുക്തിസഹമായ പ്രതികരണങ്ങൾ
12. **പഠനാസൂത്രണരേഖ (Lesson plan) യിൽ ഞാൻ ഊന്നൽ നൽകുന്നത്**
   A. വൈവിധ്യമാർന്ന സ്വന്തമായ രീതിയിലുള്ള പഠനപ്രവർത്തനങ്ങൾക്ക്
   B. പാഠ്യപദ്ധതിയിലെ ഉദ്ദേശലക്ഷ്യങ്ങൾക്ക്
   C. പാഠ്യപദ്ധതി വിദ്യാർത്ഥികൾക്കനുസൃതമായി രൂപപ്പെടുത്തുന്നതിന്
13. **ഞാൻ പാഠ്യേതരപ്രവർത്തനങ്ങൾ നൽകുമ്പോൾ**
   A. സ്വാഭാവിക കഴിവുകൾ പരിപോഷിപ്പിക്കും
   B. പഠനപ്രവർത്തനങ്ങളുടെ അനുബന്ധമായിരിക്കും
   C. വിദ്യാർത്ഥികളുടെ കഴിവനനുസരിച്ച് രൂപപ്പെടുത്തും
14. **ഒരു നാടകം അവതരിപ്പിക്കാൻ അവസരം ലഭിച്ചാൽ ഞാനേറ്റെടുക്കുന്ന ചുമതല**
   A. സംവിധാനം B. അഭിനയം C. തിരക്കഥ
15. **എന്റെ പ്രസംഗത്തിലൂടെ ഞാൻ പ്രകടിപ്പിക്കുന്നത്.**
   A. ആശയങ്ങളിലെ പുതുമ B. ക്രമീകൃതമായ അവതരണം
   C. വർത്തമാനകാല അവലോകനം

PART II

ജീവിതത്തിൽ വന്നേക്കാവുന്ന ചില സന്ദർഭങ്ങളാണ് ഓരോ പ്രസ്താവനകളിലും തന്നിരിക്കുന്നത്. ഓരോ സന്ദർഭത്തിലും താങ്കൾ പെരുമാറാൻ സാധ്യതയുള്ള നാല് രീതികൾ A, B, C, D. എന്നീ ഉത്തരങ്ങളായി തന്നിരിക്കുന്നു. അവയിൽ **നിങ്ങളെ സംബന്ധിച്ച് ഏറ്റവും അനുയോജ്യമെന്ന് തോന്നുന്ന പ്രതികരണത്തിന്റെ അക്ഷരം** (A / B / C / D) ചോദ്യത്തിന് നേരെ നൽകിയിരിക്കുന്ന ബോക്സിൽ അടയാളപ്പെടുത്തുക.

1. **ഞാൻ ഒരു കാര്യം തീരുമാനിച്ചാൽ**
   A. തീരുമാനിച്ചപോലെത്തന്നെ പൂർത്തിയാക്കും
   B. നിശ്ചയിച്ചുറപ്പിച്ച പ്രകാരം പൂർത്തിയാക്കാൻ ശ്രമിക്കാറു ്
   C. പ്രായോഗികമായ മാറ്റങ്ങളോടെ പൂർത്തിയാക്കും.
   D. പലപ്പോഴും അപൂർണ്ണയിൽ ഉപേക്ഷിക്കും.

2. **ഞാൻ ചിന്തിക്കുമ്പോൾ**

A. ചിന്ത വളരെ വളരെ കേന്ദ്രീകൃതമാണ്

B. ഒരു സമയത്ത് ഒന്നിലധികം കാര്യങ്ങളെകുറിച്ച് ചിന്തിക്കുന്നു.

C. വളരെ ക്രമാനുഗതമായി ചിന്തിക്കുന്നു

D. പ്രത്യേക ചിട്ടയില്ലാതെ ചിന്തിക്കുന്നു.

3. **എനിക്ക് ഒരു പ്രശ്നം നേരിട്ടാൽ**

A. അതു തീരുന്നത് വരെ മറ്റു പ്രശ്നങ്ങളെകുറിച്ച് ഓർക്കാറേയില്ല.

B. അതിന്റെ എല്ലാ വശങ്ങളും ഒരേപോലെ പ്രാധാന്യമുള്ളതായി തോന്നാറു ്.

C. അതിന്റെ വിവിധവശങ്ങൾ പരിഹാരവുമായി എങ്ങനെ ബന്ധപ്പെട്ടിരിക്കുന്നുവെന്ന് കാണാൻ സാധിക്കാറു ്.

D. ആ പ്രശ്നം പല പ്രശ്നങ്ങളിലേക്ക് ബന്ധപ്പെടുന്നതായി തോന്നാറു ്.

4. **ഏത് പ്രശ്നങ്ങളിലും**

A. ഏറ്റവും പ്രധാനപ്പെട്ട ചില കാര്യങ്ങളാണ് ഞാൻ ശ്രദ്ധിക്കുന്നത്.

B. നിസ്സാരമെന്ന് തോന്നുന്ന കാര്യങ്ങൾക്കുപോലും ഊന്നൽ നൽകാറു ്.

C. കാര്യങ്ങളെ പ്രാധാന്യമനുസരിച്ച് തരം തിരിക്കാറു ്.

D. ഞാൻ ലാഘവത്തോടെ കൈകാര്യം ചെയ്യാറു ്.

5. **ചിലപ്രശ്നങ്ങൾ ഒന്നിച്ച് നേരിടേ ിവരുമ്പോൾ**

A. പ്രധാനമെന്ന് തോന്നുന്ന ഒന്നിൽ മാത്രം ശ്രദ്ധിക്കും.

B പലതും കൂട്ടമായി പരിഹരിക്കാൻ ശ്രമിക്കും.

C. സങ്കീർണ്ണതകൾ പതുക്കെ ലഘൂകരിച്ചെടുക്കും.

D. ഒന്നിലും ഉറച്ച് നിൽക്കാൻ കഴിയാറില്ല.

6. **ഒഴിവ് സമയങ്ങൾ ചെലവഴിക്കുമ്പോൾ**

A. വളരെയിഷ്ടപ്പെട്ട ഒരു വിനോദത്തിൽ പൂർണ്ണമായി മുഴുകാറു ്.

B. ഏത് തരം വിനോദങ്ങളിലും ഏർപ്പെടാറു ്.

C. വിനോദങ്ങൾക്ക് ഓരോന്നിനും ഇഷ്ടാനുസരണം സമയം നൽകാറു ്.

D എന്ത് ചെയ്യണമെന്ന് പ്രത്യേക മുൻഗണനയൊന്നുമില്ല

7. **തർക്കപരിഹാരം വേ ിരുമ്പോൾ**

A. ഏറ്റവും യുക്തമായ ഒരു തീരുമാനമെടുക്കാറു ്.

B. ഒന്നിലേറെ തീരുമാനങ്ങളെടുക്കാറുെ ങ്കിലും പലതും നടപ്പിൽ വരുത്താറില്ല.

C. തീരുമാനങ്ങളെ യുക്തിസഹമായി തരം തിരിക്കാറു ്.

D. ഏങ്ങനെ തീരുമാനങ്ങളെടുക്കുമെന്ന് ആശങ്കപ്പെടാറു ്.

8. **ഒരു ആശയം പഠിപ്പിക്കേ ിവരുമ്പോൾ**

A. ഒരു ആശയത്തിന്റെ മർമ്മ പ്രധാനവശം മാത്രം ഊന്നുന്നു.

B. അതിന്റെ എല്ലാവശങ്ങളും ഒരുപോലെ പ്രാധാന്യമുള്ളതായി തോന്നാറു ്.

C. അതിന്റെ വിവിധവശങ്ങളെ പ്രാധാന്യമനുസരിച്ച് പഠിപ്പിക്കാറു ്.

D. ചിട്ടപ്പെടുത്തി പഠിപ്പിക്കാറില്ലെങ്കിലും അവതരണത്തിൽ വ്യത്യസ്തത പുലർത്താറു ്.

9. അധ്യാപനോപകരണങ്ങൾ (Teaching Aids) തെരഞ്ഞെടുക്കുമ്പോൾ

A. ഏറ്റവും അനുയോജ്യമായ അധ്യാപനോപകരണം തെരഞ്ഞെടുത്ത് ഉപയോഗിക്കുന്നു.

B. പല അധ്യാപനോപകരണങ്ങൾ പ്രാധാന്യത്തോടെ ഉപയോഗിക്കുന്നു.

C. അധ്യാപനോപകരണങ്ങൾ മുൻഗണനാക്രമത്തിനനുസരിച്ച് ഉപയോഗിക്കുന്നു.

D. ആ പീരിഡിൽ പഠിതാക്കളുടെയും എന്റേയും താത്പര്യാനുസരണം ഉപയോഗിക്കുന്നു.

10. ഉദാഹരണങ്ങൾ ഉപയോഗിക്കുമ്പോൾ

A. ഏറ്റവും അനുയോജ്യമായ ഒരു ഉദാഹരണം തെരഞ്ഞെടുക്കുന്നു.

B. അനുയോജ്യമായ പല ഉദാഹരണങ്ങൾ തെരഞ്ഞെടുക്കുന്നു.

C. വിദ്യാർത്ഥികളുടെ നിലവാരത്തിനുസൃതമായ ഉദാഹരണം തെരഞ്ഞെടുക്കുന്നു.

D. ക്ലാസ്സിന്റെ ഒഴുക്കിനനുസരിച്ച് അപ്പോൾ തോന്നിയ ഉദാഹരണം പറയുന്നു.

11. എന്റെ ശക്തിയായി ഞാൻ കണക്കാക്കുന്നത്

A. ഒരു ലക്ഷ്യം മാത്രം മുന്നിൽക ് നേടിയെടുക്കാനുള്ള കഴിവ്.

B. ലക്ഷ്യങ്ങളെ മുൻഗണനാക്രമത്തിൽ തരംതിരിച്ച് നേടിയെടുക്കാനുള്ള കഴിവ്.

C. ലക്ഷ്യങ്ങളെ ഒരേപോലെ സമീപിച്ച് നേടിയെടുക്കാനുള്ള കഴിവ്.

D. നിയതമായ ലക്ഷ്യങ്ങൾ അസാധ്യമാണെന്ന തിരിച്ചറിവ്.

12. ഞാൻ കുട്ടികളെ പഠിപ്പിക്കുമ്പോൾ

A. ഏറ്റവും അനുയോജ്യമായ ഒരധ്യാപനമാതൃക അവലംബിക്കുന്നു.

B. ഒരേ ആശയം പഠിപ്പിക്കാൻ പല അധ്യാപനമാതൃകകൾ അവലംബിക്കുന്നു.

C. ഓരോ വിഭാഗത്തിനും യോജിച്ച അധ്യപനമാതൃകകളുടെ ഒരു ശ്രേണി പാലിക്കുന്നു

D. അധ്യാപകമാതൃകകൾ അധ്യപകന്റെ വിവേചനാധികാരത്തിൽപെടുന്നതാകയാൽ അപ്പപ്പോൾ തോന്നുന്ന മാതൃകകൾ അവലംബിക്കാറു ്.

13. ഞാൻ മറ്റുള്ളവരുമായി ആശയവിനിമയം നടത്തുമ്പോൾ

A. പ്രധാനആശയത്തിന് ഊന്നൽ നൽകുന്നു.

B. പലപ്പോഴും ക്രമം തെറ്റിപ്പോകാറു ്.

C. ക്രമത്തിൽ ആശയങ്ങൾ അവതരിപ്പിക്കാറു ്.

D. മിക്കപ്പോഴും ആശയങ്ങൾ കൂടിക്കുഴഞ്ഞ് പോകാറു ്.

14. ഫയലുകൾ സൂക്ഷിക്കുമ്പോൾ

A. വളരെ കണിശമായി ക്രമം പാലിക്കുന്നു.

B. ക്രമത്തിൽ അല്പം അയവ് അനുവദിക്കുന്നു.

C. പ്രായോഗികമായ ഒരു ക്രമം പാലിക്കുന്നു.

D സാധാരണ ഒരു ക്രമവും പാലിക്കാറില്ല.

15. മൂല്യനിർണ്ണയം എന്റെ വീക്ഷണത്തിൽ

A. തീർത്തും നിയതമായ ഉദ്ദേശ്യങ്ങൾക്കനുസരിച്ചായിരിക്കും.

B. ക്രമീകൃതമായ ഉദ്ദേശങ്ങൾ അവലംബിക്കണം.

C. ഉദ്ദേശ്യങ്ങൾ പ്രതിഫലിപ്പിക്കുന്നതായിരിക്കണം.

D. അവശ്യസാഹചര്യങ്ങളിൽ മാത്രം അവലംബിക്കണം.

PART III

ഒന്നൊന്നായി നൽകിയിരിക്കുന്ന ഓരോ സന്ദർഭത്തിലും താങ്കൾ സ്വീകരിച്ചേക്കാവുന്ന രണ്ടു വിപരീത രീതികളാണ് രണ്ട് അഗ്രങ്ങളിലായി തന്നിരിക്കുന്നത്. **സാധാരണയുള്ള താങ്കളുടെ പെരുമാറ്റത്തിന്റെ തീവ്രതയനുസരിച്ച്** A, B, C, D, E എന്നിവയിൽ ഒന്ന് തെരഞ്ഞെടുത്ത് 'X' ഉപയോഗിച്ച് അടയാളപ്പെടുത്തുക.

ഉദാ:

A. ഒരു വ്യക്തിയെ ആദ്യമായി പരിചയപ്പെടുമ്പോൾ വേഷം, പെരുമാറ്റം, ചലനം തുടങ്ങിയവ ഞാൻ

ആകെപ്പാടെ ശ്രദ്ധിക്കാറു	A B C D E	സൂക്ഷ്മമായി ശ്രദ്ധിക്കാറു

A. നിങ്ങൾ ഒരു വ്യക്തിയെ **സാധാരണയായി ആകെപ്പാടെ** ശ്രദ്ധിക്കുന്ന തരക്കാരനാണെങ്കിൽ — A **X** B C D E — എന്നും

B. നിങ്ങൾ **മിക്കപ്പോഴും** ഒരാളെ **ആകെപ്പാടെ** ശ്രദ്ധിക്കുന്ന ആളാണെങ്കിൽ — A **X** B C D E — എന്നും

C. **ചിലപ്പോഴൊക്കെ അകെപ്പാടെയും ചിലപ്പോഴൊക്കെ സൂക്ഷ്മമായും** ആണ് ശ്രദ്ധയെങ്കിൽ — A B **X** C D E — എന്നും

D. നിങ്ങൾ **മിക്കപ്പോഴും** വ്യക്തികളെ **സൂക്ഷ്മമായി** ശ്രദ്ധിക്കുന്നയാളാണെങ്കിൽ — A B C **X** D E — എന്നും

E. നിങ്ങൾ **സാധാരണയായി** ആളുകളെ **സൂക്ഷ്മമായി** നിരീക്ഷിക്കുന്നയാളാണെങ്കിൽ — A B C D **X** E — എന്നും

അടയാളപ്പെടുത്തുക

1. **ഒരു വ്യക്തിയെ ആദ്യമായി പരിചയപ്പെടുമ്പോൾ വേഷം, പെരുമാറ്റം, ചലനം തുടങ്ങിയവ ഞാൻ**

ആകെപ്പാടെ ശ്രദ്ധിക്കാറു	A B C D E	സൂക്ഷ്മമായി ശ്രദ്ധിക്കാറു

2. **ഞാൻ ക്ലാസ് റൂം അച്ചടക്ക പ്രശ്നങ്ങൾ പരിഹരിക്കാൻ ശ്രമിക്കുമ്പോൾ**

പ്രശ്നങ്ങളുടെ പൊതുവായ വശങ്ങൾക്ക് ഊന്നൽ നൽകും	A B C D E	ഓരോ പ്രശ്നങ്ങൾക്കും പ്രത്യേകമായി ശ്രദ്ധകൊടുക്കും

3. **ക്ലാസ് റൂമിലെ ഗ്രൂപ്പ് പ്രവർത്തനങ്ങളെ വിലയിരുത്തി സംസാരിക്കുമ്പോൾ സാധാരണയായി**

ഓരോ ഗ്രൂപ്പിന്റെയും എല്ലാ ആശയങ്ങളേയും പൊതുവായി വിലയിരുത്താറു	A B C D E	ഓരോ ഗ്രൂപ്പിലേയും തെരഞ്ഞെടുത്ത ആശയങ്ങളെ വിശദമായി വിലയിരുത്താറു

4. ക്ലാസ് റൂമിൽ അച്ചടക്കം നിലനിർത്താൻ ഞാൻ

പൊതുവായ നിർദ്ദേശങ്ങൾ നൽകും	A B C D E	വ്യക്തവും കൃത്യവുമായ നിർദ്ദേശങ്ങൾ നൽകും

5. ക്ലാസ് റൂമിൽ ചോദ്യങ്ങൾ ചോദിക്കുമ്പോൾ ഞാൻ

പെട്ടെന്ന് ഉത്തരം പറയാവുന്ന വ്യക്തമായ ചോദ്യങ്ങൾ ചോദിക്കും	A B C D E	ആലോചിച്ചും ശ്രദ്ധയോടെ വിശകലനാത്മകമായും ഉത്തരം നൽകേ ചോദ്യങ്ങൾ ചോദിക്കും

6. ഞാൻ ഒരു പ്രസംഗം കേൾക്കുമ്പോൾ ശ്രദ്ധിക്കുന്നത്

പ്രാസംഗികനേയും/പ്രസംഗത്തേയും ആകെയാണ്	A B C D E	പ്രസംഗത്തിന്റെ ആശയം / വാദഗതി / ക്രമീകരണം എന്നിവയാണ്

7. ഞാൻ കുട്ടികൾ ചെയ്ത ഗൃഹപാഠം (Home work) മൂല്യനിർണയം നടത്തുമ്പോൾ/ വിലയിരുത്തുമ്പോൾ

പ്രധാനമെന്ന് തോന്നുന്ന ഭാഗങ്ങൾ മാത്രം ശ്രദ്ധിച്ച് വായിക്കും	A B C D E	വിവിധ ഭാഗങ്ങൾ പ്രാധാന്യത്തിനനുസരിച്ച് ശ്രദ്ധകൊടുത്ത് വായിക്കാറു ്

8. സ്കൂളിലെ നിരന്തര മൂല്യനിർണയത്തെ ഞാൻ വിലയിരുത്തുന്നത്/കണക്കാക്കുന്നത്.

വിദ്യാർത്ഥികളുടെ പ്രകടനം ആകെപ്പാടെ വിലയിരുത്തിയാണ്	A B C D E	ഓരോ വിദ്യാർത്ഥിയുടേയും ശക്തിയും ദൗർബ്ബല്യവും കണിശമായി വിലയിരുത്തിയാണ്

9. ക്ലാസ് റൂമിലെ എന്റെ അധ്യാപന രീതിയിൽ

മികച്ച അധ്യാപനരീതികളുടെ പ്രധാന ഘടകങ്ങൾ അവലംബിക്കാറു ്	A B C D E	വളരെ അനുയോജ്യമായ ഒരധ്യാപന രീതി സൂക്ഷ്മമായി അവലംബിക്കാറു ്

10. സഹായങ്ങൾ നൽകുമ്പോൾ ഞാൻ

ഓർമ്മയിൽ വരുന്നവരേയും ചോദിച്ച് വരുന്നവരേയും പരിഗണിക്കും	A B C D E	അർഹതപ്പെട്ടവരെ പ്രത്യേകമായി കെ ത്തി പരിഗണിക്കും

11. വിദ്യാർത്ഥികളുടെ പഠന നിലവാരവുമായി ബന്ധപ്പെട്ട കാര്യങ്ങൾ PTA മീറ്റിംഗിൽ ചർച്ചചെയ്യുമ്പോൾ

രക്ഷിതാക്കൾ ശ്രദ്ധിക്കേ കാര്യങ്ങൾ പൊതുവായി പറയും	A B C D E	രക്ഷിതാക്കൾ പ്രത്യേകം ശ്രദ്ധിക്കേ കാര്യങ്ങൾ വിശദമായി അക്കമിട്ട് പറയും

12. ഒരു പിരീഡിൽ പഠിപ്പിച്ച കാര്യങ്ങൾ

മിക്കപ്പോഴും ഒന്നോരേ ാ വാചകത്തിൽ സംഗ്രഹിക്കാറു ്	A B C D E	പ്രധാനാശയങ്ങളെല്ലാം ആവർത്തിച്ച് കൊ ുള്ള സംഗ്രഹം നടത്താറു ്

PART IV

ഒന്നൊന്നായി നൽകിയിരിക്കുന്ന ഓരോ സന്ദർഭത്തിലും താങ്കൾ സ്വീകരിച്ചേക്കാവുന്ന രണ്ടു വിപരീത രീതികളാണ് രണ്ട് അഗ്രങ്ങളിലായി തന്നിരിക്കുന്നത്. **സാധാരണയുള്ള താങ്കളുടെ പെരുമാറ്റത്തിന്റെ തീവ്രതയനുസരിച്ച്** A, B, C, D, E എന്നിവയിൽ ഒന്ന് തെരഞ്ഞെടുത്ത് 'x' ഉപയോഗിച്ച് അടയാളപ്പെടുത്തുക.

1. വളരെ പരിചിതമല്ലാത്ത ഒരു ഗ്രൂപ്പിൽ സാധാരണയായി

സംസാരിക്കാറാണ് പതിവ്	A B C D E	സംസാരം കേട്ടിരിക്കുകയാണ് പതിവ്

2. സ്കൂളിന്റെ പുരോഗതിക്കായി ഉപയോഗപ്പെടുത്തേണ്ട എന്റെ കഴിവായി ഞാൻ കണക്കാക്കുന്നത്

എന്റെ നേതൃപാടവം	A B C D E	എന്റെ ആസൂത്രണ പാടവം

3. കായിക മത്സരങ്ങളിൽ പങ്കെടുക്കുമ്പോൾ ഞാൻ

ടീമിലേ മറ്റുള്ളവരെ സ്വാധീനിക്കുന്ന സ്ഥാനം ഇഷ്ടപ്പെടുന്നു	A B C D E	വ്യക്തിഗത മികവിലൂടെ ടീമിനെ പിന്തുണക്കാൻ ഇഷ്ടപ്പെടുന്നു

4. വിദ്യാർത്ഥികളുടെ പഠനപുരോഗതി രക്ഷിതാക്കളുമായി പങ്കുവെക്കുമ്പോൾ

രക്ഷിതാക്കളെ ഓരോരുത്തരേയും തൃപ്തിപ്പെടുത്താറു ്	A B C D E	സമീപിക്കുന്ന രക്ഷിതാക്കളോട് വിശദമായി സംസാരിക്കാറു ്

5. തൊഴിൽപരമായ മികവ് ആർജിക്കുന്നതിൽ ഞാൻ ഊന്നൽ നൽകുന്നത്

കൂട്ടായ്മകളിലൂടെയും സഹകരണത്തിലൂടെയും ആർജിക്കേണ്ട ശേഷികളാണ്	A B C D E	കഠിനാദ്ധ്വാനത്തിലൂടെയും ആത്മപരിശോധനയിലൂടെയും ആർജിക്കേണ്ട ശേഷികളാണ്

6. മറ്റുള്ളവരുടെ പ്രശ്നങ്ങളിൽ പൊതുവെ

ഇടപെടലും പരിഹരിക്കലുമാണ് എന്റെ രീതി	A B C D E	വളരെ അനിവാര്യമെങ്കിൽ മാത്രം ഇടപെടലാണ് എന്റെ രീതി

7. സ്കൂളിലെ കലോൽസവവുമായി ബന്ധപ്പെട്ട ഒരു കമ്മിറ്റിയിൽ അംഗമായാൽ ഞാൻ

കമ്മിറ്റിയിലെ മറ്റംഗങ്ങളുമായി ചേർന്ന് ഉത്തരവാദിത്തം ചെയ്ത് തീർക്കും	A B C D E	എന്നെ ഏൽപ്പിച്ച ഉത്തരവാദിത്തം നന്നായി ചെയ്ത് തീർക്കും

8. ഞാൻ ഒരാശയം പഠിപ്പിക്കുമ്പോൾ

മറ്റുവിഷയങ്ങളിലെ സമാന ആശയങ്ങളുമായി അതിനെ ബന്ധപ്പെടുത്താറു ്	A B C D E	ആശയത്തിന്റെ വ്യാപ്തി നിലനിർത്തികൊ ് തന്നെ വിഷയത്തിൽനിന്നും വ്യതിചലിക്കാതെ സൂക്ഷിക്കാറു ്.

9. വൈവിധ്യത പുലർത്തുന്ന ആശയങ്ങൾ പഠിപ്പിക്കേണ്ടിവരുമ്പോൾ ഞാൻ

സംഘബോധനത്തിൽ (Team Teaching) ഒരംഗമായി പഠിപ്പിക്കാൻ ഇഷ്ടപ്പെടുന്നു	A B C D E	വ്യത്യസ്ത അധ്യാപനനൈപുണി (Teaching Skill) കളിയിലൂടെയുള്ള ബോധനത്തെ ഇഷ്ടപ്പെടുന്നു

10. പ്രോജക്ടുകളിൽ ഞാൻ ഇഷ്ടപ്പെടുന്നത്

ഗ്രൂപ്പ് പ്രോജക്ടുകളാണ്	A B C D E	വ്യക്തിഗത പ്രോജക്ടുകളാണ്

11. ഞാൻ ക്ലാസ്സ്റൂമിൽ പ്രശംസിക്കുകയോ/ഗുണദോഷിക്കുകയോ ചെയ്യുമ്പോൾ മാനദണ്ഡമാക്കുന്നത്

വിദ്യാർത്ഥിയെയാണ്	A B C D E	പ്രവർത്തിയെയാണ്

12. എന്റെ വീക്ഷണത്തിൽ ഒരു പാഠ്യപദ്ധതിയിലൂടെ കുട്ടി ആർജിച്ചെടുക്കേ മികച്ച ഗുണം

സമൂഹത്തിലൂടെയുള്ള വ്യക്തിയുടെ വികാസം	A B C D E	വ്യക്തിയിലൂടെയുള്ള സമൂഹത്തിന്റെ വികാസം

PART V

ഒന്നൊന്നായി നൽകിയിരിക്കുന്ന ഓരോ സന്ദർഭത്തിലും താങ്കൾ സ്വീകരിച്ചേക്കാവുന്ന രു വിപരീത രീതികളാണ് ര ് അഗ്രങ്ങളിലായി തന്നിരിക്കുന്നത്. **സാധരാണയുള്ള താങ്കളുടെ പെരുമാറ്റത്തിന്റെ തീവ്രതയനുസരിച്ച്** A, B, C, D, E എന്നിവയിൽ ഒന്ന് തെരഞ്ഞെടുത്ത് 'x' ഉപയോഗിച്ച് അടയാളപ്പെടുത്തുക.

1. നിലവിലുള്ള ചട്ടങ്ങൾക്കതീതമായി അധ്യാപനം നടത്താൻ സ്കൂളിൽ പ്രധാനധ്യാപകൻ പരിപൂർണ്ണ സ്വാതന്ത്ര്യം അനുവദിക്കുകയാണെങ്കിൽ

സ്ഥിരമായി പ്രയോഗിക്കുന്ന അധ്യാപന രീതികൾ അവലംബിക്കും	A B C D E	വൈവിധ്യമാർന്ന രീതികൾ അവലംബിക്കും

2. എന്റെ ക്ലാസിലെ കുട്ടികളുടെ അച്ചടക്കവുമായി ബന്ധപ്പെട്ട പ്രശ്നങ്ങൾ കൈകാര്യം ചെയ്യേ ിവരുമ്പോൾ

നിലവിലുള്ള രീതികളും മാനദണ്ഡങ്ങളും പാലിക്കും	A B C D E	വ്യത്യസ്തമായതും പുതുമായുള്ളതുമായ രീതികൾ പരീക്ഷിക്കും

3. ഞാൻ പഠിപ്പിക്കുന്ന വിഷയത്തിൽ കുട്ടികൾക്ക് മാർക്ക് കുറയുകയാണെങ്കിൽ

നിലവിലെ അധ്യാപന രീതി മെച്ചപ്പെടുത്താൻ ശ്രമിക്കണം	A B C D E	കൂടുതൽ മെച്ചപ്പെട്ട അധ്യാപന രീതിഅലവംബിക്കും

4. ഒരു പുതിയ ആശയം കുട്ടികളുടെ മുമ്പിൽ അവതരിപ്പിക്കുമ്പോൾ

കൈപുസ്തക (Hand book) ൽ പറഞ്ഞ രീതികൾ അവലംബിക്കും	A B C D E	എന്റെതായ രീതിയിൽ പുതുമയോട് കൂടി അവതരിപ്പിക്കും

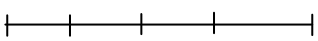
5. ഞാൻ ക്ലാസിൽ കുട്ടികൾക്ക് പ്രബലനം (Reinforcement) നൽകുമ്പോൾ

സാധാരണ രീതികൾ ഉപയോഗിക്കും	A B C D E	പുതുമയാർന്ന രീതികൾ ഉപയോഗിക്കും

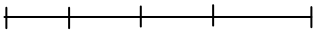
6. ഞാൻ ക്ലാസിൽ പാഠഭാഗങ്ങൾ വിശദീകരിക്കുമ്പോൾ

വ്യക്തതയോടെ ഔപചാരികമായി വിശദീകരിക്കും	A B C D E	വൈവിധ്യാമാർന്ന രീതിയിൽ പുതുമയോടെ അവതരിപ്പിക്കും

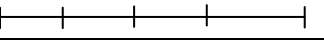
7. എന്റെ ദിനചര്യയിൽ വരുന്ന മാറ്റങ്ങൾ

അധ്യാപനത്തെ സാരമായി ബാധിക്കാറു ്	A B C D E 	മാറ്റങ്ങൾക്കനുസൃതമായി അധ്യാപനത്തെ മുന്നോട്ട് കൊ ് പോകാൻ കഴിയാറു ്

8. പഠനാസൂത്രണരേഖ (Lesson Plan) തയ്യാറാക്കുമ്പോൾ ഞാൻ

അതിനനുസരിച്ച് ക്ലാസെടുക്കണമെന്ന് ആഗ്രഹിക്കാറു ്	A B C D E 	അതിനുമപ്പുറത്തേക്ക് സാഹചര്യങ്ങൾക്കുസരിച്ച് വ്യത്യസ്തത പൂലർത്തി ക്ലാസെടുക്കണമെന്ന് ആഗ്രഹിക്കാറു ്

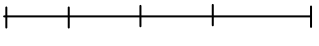
9. പാഠ്യപദ്ധതി ചട്ടക്കൂട്ടിലെ (Curriculum frame work) നിർദ്ദേശങ്ങളും ചട്ടങ്ങളും ഞാൻ

അതേപടി പാലിക്കുന്നു	A B C D E 	യുക്തമെന്ന് തോന്നുന്ന വ്യതിയാനങ്ങൾ പരീക്കുന്നു

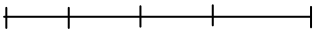
10. ഒരു ചടങ്ങിൽ അതിഥിയായി പങ്കെടുത്ത് ഭക്ഷണം കഴിക്കുമ്പോൾ ഞാൻ

എന്റെ സ്ഥിരം വിഭവങ്ങൾ മാത്രം കഴിക്കും	A B C D E	വൈവിധ്യമാർന്ന പുതുമയുള്ള വിഭവങ്ങൾ പരീക്ഷിക്കും

11. എന്നെ സ്വാധീനിച്ച എഴുത്തുകാർ

മൗലികമായ ചട്ടകൂടിൽനിന്നുകൊ ് ഉദാത്തമായ സൃഷ്ടികൾ നടത്തുന്നവരാണ്	A B C D E 	സമകാലിക ജീവിതയാഥാർത്ഥ്യങ്ങളെ കാലികമായി ആവിഷ്ക്കരിക്കുന്നവരാണ്

12. സ്കൂളിലെ നിയമങ്ങളേയും ചട്ടങ്ങളേയും ഞാൻ വിലയിരുത്തുന്നത്

കൃത്യമായും വ്യക്തമായും പാലിക്കപ്പെടേ തെന്ന നിലയിലാണ്	A B C D E 	സന്ദർഭത്തിനും, കാലത്തിനുമനുസരിച്ചുള്ള ഭേദഗതികൾ ആവശ്യമാണെന്ന നിലയിലാണ്

Appendix B4
UNIVERSITY OF CALICUT
DEPARTMENT OF EDUCATION
THINKING STYLE INVENTORY ENGLISH (FINAL)

Dr. K. Abdul Gafoor — Associate Professor
Haskar Babu. U. — Research Scholar

Name.....Subject:.....

Sex : Male / Female

Age : 20 - 25 / 26 - 30 /30 above

Teaching Experience :

Educational Qualification:

College / University :

The Thinking Style Inventory consists of statements for understanding your thinking style. The statements are divided into five parts. Mark your response only after reading carefully the instructions given in each part.

Part I

In Part I, some situations in daily life are given in each statement. Three possible choices /options A/B/C are given. Choose a response that is most suitable for you for each situation, and write it in the box provided on the right side for each statement.

1. When I Build home, I

A. create uniqueness
B. depend on existing style
C. include good aspects and avoid bad aspects of different houses

2. Education must give more emphasis on the students

A. Creativity B. Efficiency C. analytical skill

3. I convey in meetings

A. variety of ideas B. practical instructions
C. clever decisions

4. In my opinion, the most important principle of success is

A. self initiation B. hard work C. Self examination

5. The best quality I consider in myself is

A. Skill in planning B.Sense of responsibility C. Sense of Value

6. The best quality of knowledge

A. novelty B. Planning C. Factual

7. The most valuable mode of thinking is

A. Divergent Thinking
B. Convergent Thinking
C. Critical Thinking

8. In my view the syllabus of the students

A. foster the self learning ability
B. foster the ability based on aims
C. encourage the criticism skills

9. The means I use to maintain discipline in the classroom

A. varied teaching methods B. clear guidelines
C. rational analysis based on cause and effect

10. After reading a book/article, I

A. get some new ideas in mind/thought
B. remember the important ideas
C. evaluate the content and ideas

11. I expect in the question answers with the students

A. their own ideas
B. precise and clear response
C. rational and enlightened response

12. I give emphasis on lesson planning

A. variety learning activities of their own style
B. learning objectives of the course
C. frame the syllabus according to the students

13. When I give co-curricular activities

A. foster the innate abilities
B. extension of learning activities
C. frame according to students abilities

14. When I get a chance to perform a drama, I prefer

A. direction B. acting C. screen play

15. I express through my discourse / speech

A. novelty in ideas B. systematic presentation
C. analysis of current affairs.

PART II

In Part II, some situations in daily life are given in each statement. Four possible choices /options A/B/C/D are given as answers. Choose a response that is most suitable for you for each situation and write it in the box given on the right side for each statement.

1. If I decide to do something, I will

A. complete it as decided
B. try to complete as per decision
C. complete with practical changes
D. often discard it in an incomplete manner

2. When I think, it will be

A. centralized B. more than one matter at a time

C systematic D. without special order

3. If I face a problem, I

A. do not think about other problems , until I solve it

B. feel all aspects of the problem as equally important

C understand how the various aspects of the problem are related with solution

D. feel this problem relates to other problems.

4. In any problem, I

A. focus only on important matters

B. focus even minute aspects

C. classify matters according to importance

D handle things with ease

5. When I have to face certain problems simultaneously, I

A. attend the problem that seems to be important

B try to solve all problems collectively

C. simplify the complexities gradually

D. cannot take a firm stance

6. When I spend the leisure time, I will

A. engage in a most favourite hobby

B. engage in any type of hobby

C. keep apart required time to each type of hobby

D do not give any priority to what has to be done

7. During the time of settling disputes, I will

A. take most reasonable decision

B. take more than one decision, but most are not implemented

C. classify the decisions in a reasonable way

D be concerned about how to take the decisions

8. When I teach a concept, I

A. will give emphasis to the cardinal aspect only

B. feel all aspects of the concept are equally important

C will teach different aspects of the concept as per importance.

D. keep diversity in presentation, even though not teaching in a systematic way

9. While selecting teaching aids, I use

A. most appropriate one

B different teaching aids according to its importance

C. in an order of priority

D. in accordance with the interests of students and myself

10. While using examples, I select

A. the most appropriate example

B. many appropriate examples

C as per the standard of students

D. example according to the demands of classroom situation

11. I consider that my strength is the

A. ability to attain a particular objective

B. ability to face and achieve objectives in an order of priority

C. ability to face and attain aims in the same way

D. realization that attainment of definite aims is impossible

12. When I teach children, I adopt

A. most appropriate teaching method

B different methods to teach a single idea

C. keeps an order which is suitable to each group

D. uses teaching method according to the context as it is related to the discretion of teacher

13. While communicating with others

A. focus on main idea

B sometimes becomes out of order

C. often presents ideas in an order

D. often ideas overlap with others

14. While maintaining files

A. follows the order strictly

B. allows a little flexibility in the order

C. follows a practical order

D generally do not follow any order

15. In my opinion, evaluation must be

A. in accordance with definite objectives

B. adopt systematic objectives

C. reflect objectives

D. adopt only if the situation demands

PART III

A few statements are provided below in relation to usual daily life situations. The two possible extreme behaviours that you might choose in each of those situations are placed at the two ends of the continuum. The continuum is divided into five intervals as A, B, C, D and E. Please put an "X" mark on any of the intervals of your choice.

Eg,

A. When I first meet a person, the appearence, behaviour and movements are

Observed totally	A B C D E	Noticed closely

A. If you usually pay attention to the person in a casual manner, do — A B C D E or

B. If you occasionally pay attention to the person in a casual manner,do — A B C D E or

C. If you usually pay attention to the person in a casual manner, but occasionally very vigilantly, do — A B C D E or

D. If you occasionally pay attention to the person very vigilantly, do — A B C D E or

E. If you usually pay attention to the person very vigilantly do — A B C D E

Please follow the same pattern for responding **PART IV** and **PART V**.

1. When I first meet a person, the appearence, behaviour and movements are

Observed totally	A B C D E	Noticed closely

2. when I try to solve disciplinary problems in the classroom

Give emphasis to common aspects of the problem	A B C D E	Give attention to each problems specifically

3. Usually when I speak evaluating the group activities in the classroom

Evaluate generally all the ideas of each and every group	A B C D E	Evaluate clearly the selected ideas of each group

4. To maintain discipline in the classroom

Give general instructions	A B C D E	Give clear and exact instructions

5. When I ask questions in the classroom

Ask clear questions that should be answered quickly	A B C D E	Ask questions that should be answered carefully after thinking and analyzing

6. When I hear a speech I give attention to

Speaker/speech as a whole	A B C D E	Speaker's ideas/arguments/planning

7. When I evaluate the homework of students

Read carefully only important parts	A B C D E	Read carefully different parts in accordance with importance

8. I consider the continuous evaluation in school by

Evaluating the students'performance as a whole	A B C D E	Evaluating strictly each and every student's strength and weakness

9. my teaching methods in the classroom

Adopt important elements of excellent teaching model	A B C D E	Adopt carefully on the most suitable teaching model

10. When I do/give help

Consider both those who need help and those who seek help	A B C D E	Consider those who are very deserving

11. While discussing the students' academic performance in a PTA meeting

Mention the common matters that parents should take care of	A B C D E	Matters that the parents should take care of will mention one by one

12. The content which is taught in a period

Most of the time summarize in one or two sentences	A B C D E	Summarize repeating all the important ideas

PART IV

1. Usually in an unfamiliar group

Speak regularly	A B C D E	Hear the speaking regularly

2 I consider my abilities for the achievement of school

My leadership skill	A B C D E	My planning efficiency

3. When I participate in sports competitions

I like position influencing others	A B C D E	I like to support the team through individual ability

4. When I share the students learning achievements with their parents

Satisfy each and every parent	A B C D E	Speak clearly to the parents who approach me

5. I give emphasis to obtain occupational excellence

The skill which are acquired through cooperation and unity	A B C D E	The skill which are acquired through effort and self-examination

6. Generally, in the problems of others

My method is interference and solving	A B C D E	My method is interference only if it is necessary

7. If I am the member of a committee related to the school festival

Do the responsibility jointly with other members in the committee	A B C D E	Do the responsibility assigned to me in the most efficient manner

8. When I teach an idea

Connect it with similar ideas in other subjects	A B C D E	Maintain the depth of idea,without deviating from the subject

9. When I teach variety of ideas

I like to teach as one of the members in team teaching	A B C D E	I like to teach through different teaching skills

10. I like in the projects

Group projects	A B C D E	Individual projects

11. When I praise or advice in the classroom,the criteria I follow

Of the students	A B C D E	Of the ctivity

12. In my view, the best quality which has to be acquired by the students through the curriculum

Individual development through society	A B C D E	Social development through individual

PART V

1. If the headmaster permits the complete freedom for teaching beyond the existing rules

adopt the usual teaching methods	A B C D E	Adopt diverse methods

2. Dealing with classroom disciplinary problems

Maintain the existing rules and norms	A B C D E	Experiment with various and novel methods

3. If the students get low marks in my subject

Try to improve the existing teaching methods	A B C D E	Adopt more effective teaching methods

4. When I present a new idea in front of students

Follow the methods described in handbook	A B C D E	Present in my own way with novelty

5. When I give reinforcement to students in my class

Use the usual methods	A B C D E	Use the novel methods

6. When I explain the lessons in the class

Formally explain with clarity	A B C D E	Present in different ways with novelty

7. The changes in my daily routine

Deeply affect the teaching	A B C D E	directs the teaching in accordance with the changes

8. When I prepare lesson plan

Want to take class as such	A B C D E	Want to take class diversely as per situation beyond lesson plan

9. The norms and rules in the curriculum framework

Obey as itself	A B C D E	Experiment with suitable changes

10. When I have food in a function as a guest

Follow the usual diet	A B C D E	Experiment with variety dishes

11. The writers who influence me

Do real works by standing radical frame work	A B C D E	Express contemporary real life situation

12. I evaluate the rules and regulations in school

Must be observed accurately and clearly	A B C D E	Amendments may be needed in accordance with situation and time

Appendix B5

THINKING STYLE INVENTORY- RESPONSE SHEET [DRAFT]

Name of the Teacher: …….. School: …….

PART I

1	A	B	C
2	A	B	C
3	A	B	C
4	A	B	C
5	A	B	C
6	A	B	C
7	A	B	C
8	A	B	C
9	A	B	C
10	A	B	C
11	A	B	C
12	A	B	C
13	A	B	C
14	A	B	C

15	A	B	C
16	A	B	C
17	A	B	C
18	A	B	C
19	A	B	C
20	A	B	C
21	A	B	C
22	A	B	C
23	A	B	C
24	A	B	C
25	A	B	C
26	A	B	C
27	A	B	C

PART II

1	A	B	C	D
2	A	B	C	D
3	A	B	C	D
4	A	B	C	D
5	A	B	C	D
6	A	B	C	D
7	A	B	C	D
8	A	B	C	D
9	A	B	C	D
10	A	B	C	D

11	A	B	C	D
12	A	B	C	D
13	A	B	C	D
14	A	B	C	D
15	A	B	C	D
16	A	B	C	D
17	A	B	C	D
18	A	B	C	D
19	A	B	C	D
20	A	B	C	D

PART III

1	A	B	C	D	E
2	A	B	C	D	E
3	A	B	C	D	E
4	A	B	C	D	E
5	A	B	C	D	E
6	A	B	C	D	E
7	A	B	C	D	E
8	A	B	C	D	E
9	A	B	C	D	E
10	A	B	C	D	E
11	A	B	C	D	E
12	A	B	C	D	E
13	A	B	C	D	E
14	A	B	C	D	E
15	A	B	C	D	E

PART IV

1	A	B	C	D	E
2	A	B	C	D	E
3	A	B	C	D	E
4	A	B	C	D	E
5	A	B	C	D	E
6	A	B	C	D	E
7	A	B	C	D	E
8	A	B	C	D	E
9	A	B	C	D	E
10	A	B	C	D	E
11	A	B	C	D	E
12	A	B	C	D	E
13	A	B	C	D	E
14	A	B	C	D	E
15	A	B	C	D	E

PART V

1	A	B	C	D	E
2	A	B	C	D	E
3	A	B	C	D	E
4	A	B	C	D	E
5	A	B	C	D	E
6	A	B	C	D	E
7	A	B	C	D	E
8	A	B	C	D	E
9	A	B	C	D	E
10	A	B	C	D	E
11	A	B	C	D	E
12	A	B	C	D	E
13	A	B	C	D	E
14	A	B	C	D	E
15	A	B	C	D	E
16	A	B	C	D	E
17	A	B	C	D	E

Appendix B6

THINKING STYLE INVENTORY RESPONSE SHEET –FINAL

Name of the Teacher: …….. School : …….

PART I

1	A	B	C
2	A	B	C
3	A	B	C
4	A	B	C
5	A	B	C
6	A	B	C
7	A	B	C
8	A	B	C
9	A	B	C
10	A	B	C
11	A	B	C
12	A	B	C
13	A	B	C
14	A	B	C
15	A	B	C

PART II

1	A	B	C	D
2	A	B	C	D
3	A	B	C	D
4	A	B	C	D
5	A	B	C	D
6	A	B	C	D
7	A	B	C	D
8	A	B	C	D
9	A	B	C	D
10	A	B	C	D
11	A	B	C	D
12	A	B	C	D
13	A	B	C	D
14	A	B	C	D
15	A	B	C	D

PART III

1	A	B	C	D	E
2	A	B	C	D	E
3	A	B	C	D	E
4	A	B	C	D	E
5	A	B	C	D	E
6	A	B	C	D	E
7	A	B	C	D	E
8	A	B	C	D	E
9	A	B	C	D	E
10	A	B	C	D	E
11	A	B	C	D	E
12	A	B	C	D	E

PART IV

1	A	B	C	D	E
2	A	B	C	D	E
3	A	B	C	D	E
4	A	B	C	D	E
5	A	B	C	D	E
6	A	B	C	D	E
7	A	B	C	D	E
8	A	B	C	D	E
9	A	B	C	D	E
10	A	B	C	D	E
11	A	B	C	D	E
12	A	B	C	D	E

PART V

1	A	B	C	D	E
2	A	B	C	D	E
3	A	B	C	D	E
4	A	B	C	D	E
5	A	B	C	D	E
6	A	B	C	D	E
7	A	B	C	D	E
8	A	B	C	D	E
9	A	B	C	D	E
10	A	B	C	D	E
11	A	B	C	D	E
12	A	B	C	D	E