INTRODUCTION

INTRODUCTION

- Need and Significance
- Statement of the Problem
- Definition of Key Terms
- Variables Selected for the Study
- Objectives
- Hypotheses
- Procedure
- Scope and Limitations
- Organisation of the Report
As the world has moved from the industrial age to a technology based society in which individual and societal competence is paramount, the focus of educational systems must shift from the basic ABC's to Competency-Based Education. Educational priorities may be continually revised to meet competitive and ever-changing work place demands and hence student performance must be assessed on specific, employer-determined competencies (Ames, 1996). To ensure the impact of that specific competencies imparted to all students, teachers should improve understanding of the learning process and theories of instructional effectiveness.

Children should be provided with a common education that enhances the individuality and encourages personality and simultaneously passes along the society's culture and its tools (Joyce et al., 1992). In a developing society like India, ensuring quality education for all is a matter of prime concern. The educational system, especially the secondary school sector has expanded considerably in the post independent India. But this sudden expansion has resulted in increased qualitative differentiation in schooling. The quantitative expansion of educational system needs to be simultaneously incorporated with improved inputs, instructional and learning techniques to improve the quality of learning outcomes.
Learning is portrayed as an active process of making sense of the world around by engaging with the subject matter in ways which develop both interest and a deeper level of understanding (Marton, 1988). Teachers can foster this process by recognising how students conceptualise important aspects of subject, and by encouraging strategies which empower the students to learn for themselves. It involves an important transfer of power from teacher to student; yet it is precisely the transfer that is essential to leave young people with the attitudes, skills and competencies required to make the way in the world.

Teachers should surely not leave effective study strategies to evolve through trial and error as now in a position to provide coherent advice. Techniques of studying are better introduced within a framework which encourages students to reflect on how to interpret requirements accurately, how to develop personal understanding and how to monitor the effectiveness of their own learning.

In the present era of science and information technology, psychologists and educationists in India and abroad are actively trying to evolve measures to raise the quality of learning outcomes in the school classrooms. A number of factors that affect the process of learning rather than the product were sorted out by researchers. Systematic and scientific efforts are required to identify and understand the nature of student learning and scholastic achievement.

Today's classrooms are increasingly multi-cultural, and students bring rich personal, social, intellectual and educational experiences to classrooms that teachers must use. Optimising learning for all students in classrooms can
be achieved through multiple learning opportunities and *style-shifts* for all students as these differences are valued and celebrated (Suleiman, 1996). On the other hand teachers are encouraged to adjust their teaching strategies and the students unique learning styles. This is especially true in the present increasingly diverse classrooms where multiple ways of knowing, learning and interacting have to be valued.

In recent years there has been a substantial amount of research focussing on the relationship between *qualitative differences* in students' learning style and learning outcomes. Most of these studies have, however, focussed on the *qualitative differences* in learning outcomes of students engaged in individual academic tasks such as reading an academic article (Dahlgren, 1984).

While spotlighting on students' experience of academic learning it is important to avoid a narrow emphasis on the effectiveness of teaching (Entwistle, 1990). A broader view which encompasses the whole learning environment is more likely to lead to improvements in learning outcomes. Research evidences show that in order to carry out learning tasks successfully, efforts should be made to *match instruction* to important study characteristics of the learner (Suleiman, 1996 & Warren, 1999).

Researches provide a language of concepts and categories through which to discuss more precisely teaching and learning in higher education. Through that language teachers should be able to explain to students how to become more effective learners. Researches suggested that it is essential for students to become more *aware* of the learning styles and strategies to
think out carefully what is expected to achieve from studying and to understand the implications of adopting a particular learning strategy.

The stages of cognitive development of several students may not correspond to their ages and achievements (Piaget, 1973). This accounts for contradictions in levels of achievement across the curriculum. Most teachers are unprepared to shift attention from explicit presentations of subject matter to fostering development of abstract thinking and are reluctant to reduce or substitute content despite the implications of Piagetian research (Giles, 1995). Knowing how students learn can then help to inform good choices by teacher of content, resources and teaching strategies.

Teachers can make improvements in instruction when teach in ways that bring about not only learning in that particular subject, but also pupils' personality development. Teachers are thus to identify students' learning styles and strategies and take them into consideration when designing instruction (Moustafa, 1999). Teachers also need to provide opportunities for students to learn in a way which suits the preferred style of learning (Entwistle, 1981).

Students have very different reasons for continuing education which can be understood in terms of contrasting dominant motives (Taylor, 1983). The importance of this research is in the way it reinforces the idea that students have reasons for studying which powerfully influence the approaches and achievements.

Recent research evidences show that teaching is only one among many factors that influences learning. It becomes increasingly visible that student characteristics influence subsequent learning and its educational outcomes.
Students with well organised study approaches and styles are expected to excel in academic performance, but researchers are sharply focussed on how to improve the overall quality of student learning in classrooms.

Research evidences also reveal that successful learning is not possible without conducive environment. It is a strong sociological factor that can deeply influence academic achievement (Fraser, 1986). The central assumption in Piaget's (1973) analysis of cognitive change was the belief that development depends upon a continuous interaction between organism and environment.

Learning is a covert intellectual process providing the development and restructuring of existing conceptual schemes. Classroom learning takes place within a complex social environment. It is necessary to understand how the class climate affects pupils' learning. Every learning environment produces a range of responses by students, expressed in terms of the efficiency and comfort with which the learners are able to interact with the environment (Bound, et al., 1985). Loosely speaking learning style and environment designed to produce learning interact differently. No given learning environment will produce exactly the same effects on all students.

The learning process is thus an organised whole of all those characteristics with regard to the teacher, student, classroom environment etc. Review of literature on psycho-educational researches are convincingly enough to highlight the recent advancements in the research on psychology of learning. Currently, educationists are interested in the nature and degree of relationship of many student variables (Cognitive and Non-cognitive),
teacher variables (Teacher Effectiveness, Teaching Styles), contextual variables (Classroom Climate, Effect of Academic Department) and student specific variables (Approaches to Studying, Styles of Learning, Learning Strategies, Study Habits) related to student performance in the classroom.

1.1. NEED AND SIGNIFICANCE

Even though there is no dearth of variables to account for learning outcomes, the present study is designed to highlight on student specific variables like Learning Style and Approaches to Studying besides the climate factors that affect learning process. These variables have opened up avenues for the concepts of learner participation and involvement in learning tasks. There are research reports that revealed involvement had a significant effect on achievement (Pine, 1980; Vedras & Pankowski, 1980). Welden (1996) reported greater learner satisfaction obtained when students involved in learning tasks.

An important shift in perspective in the research on classroom learning is the acceptance that it is important to understand learning from pupils’ perspective, which is different from those of both teachers and researchers (Entwistle, 1988). Hence a diversion emerged in research on how students learn.

Learning to a greater extent depends on a large number of facilitating and debilitating factors such as the pupil's aptitude and affect, socio-familial background, instructional methods, cognitive style, classroom climate and pupils' style of learning and approaches to studying. As a result, a number of eminent researchers have attempted to evolve factors of how students learn from student's own perspectives. Pask's work (1976) which absolutely dealt
with the ways students tackled a learning task ultimately paved the way for a student specific variable viz., the *Learning Style*. Learning Style is concerned with the adoption of similar set of strategies consistently across different learning tasks and settings. Following with Pask's (1976) tradition of research on styles and strategies Kolb (1983), Keefe and Monk (1986), Schmeck (1988), Taneja (1989), Price, *et al.* (1991), Dunn (1991) and Harvey (1994) have explored the various aspects of Learning Style. Learning Style has been subjected to topic of research since then, unveiled the relationship of Learning Style with different student-teacher-environmental characteristics.

*Style Preferences* and *Instructional Groupings* (Dunn & Griggs, 1990), *Learning Style* and *Teaching Style Congruency* (Cooper & Miller, 1992), *Learning Style* and *Achievement and Retention* (Barbara, 1993), *Learning Style Preferences* (Dunn, 1995), *Learning Style* and *Achievement Motivation* (Preetha, 1996), *Learning Style* and *Approaches to Studying* (Rehna, 1996), *Learning Style* and *Achievement* (Santhoshkumar, 1997; Kumar, 1997), *Learning Style* and *Intelligence* (Prasanna, 1997), *Learning Style* and *Classroom Climate* (Bhargavi, 1999), *Learning Style with regard to Sex* and *Locale* (Gopalan, 1999), *Learning Style* and *Multiple Intelligence* (Dunn, *et al*., 2001) etc. have been studied elaborately.

When pupils were required to demonstrate understanding, they showed differing strategies in the way the learning materials were tackled (Pask, 1976). *Learners are found to adopt a fixed style of learning that is unlikely to change or grow.* So it is important to focus on *how students learn*. Research reports indicate that academic achievement will be the highest if pupils are given a chance to proceed according to *their own style of learning*. This is well applicable in social sciences where observations, self
experimentation etc. are necessary. Individuals may not ultimately confirm knowledge until they handled it in modalities they strongly trust. In higher education field technology provides new capabilities to reconstruct learning environments around specific learning styles.

A group of English (Entwistle & Robinson, 1976) and Swedish (Marton & Saljo, 1976) researchers focussed on the *qualitative differences* in learning. Biggs (1979) and his collaborators in Australia, also studied the perspective of learning process. Among these researchers using different approaches and different analytical instruments, the three groups have developed a reasonably coherent account of the different approaches of students in learning tasks as well portrayed in Marton *et al.* (1984). Results of these researches led to the identification of the variable *Approaches to Studying*.

Teachers need to know much about helping learners develop environment relevant skills. It is interesting to observe students in schools that have *distinctive* approaches to learning and that pay attention to helping learners become effective in environments they are creating. Schools that emphasize self directed activity need to teach students how to engage in self direction (Joyce, *et al.*, 1992).

The emphasis on learning and examining the factual material pushes students into a mode of learning which few teachers would consciously accept as appropriate, but which many teachers currently repeatedly reinforce through their criteria for marking. These indirect messages strongly influence students' approaches to learning (Entwistle, 1987). It is also clear that the *students' own expectations* influence how they go about learning.
An indepth survey of literature on how students learn revealed that a number of investigators have studied the variable Approaches to Studying and its related factors. Biggs (1979) - Study Approach and Preference (Ramsden & Laurillard, 1979) - Variability in Approach (Watkins, 1986; Speth & Brown, 1988) - Deep and Surface Approach (Entwistle & Waterston, 1988) - Approach and Levels of Processing (Watkins & Hattie, 1990) - Study Approach and Self-esteem (Trigwell & Prosser, 1991) - Study Approach and Quality of Learning Outcomes (Pillai & Naseema, 1991; Asmali, 1992; Kumar, 1993; Kumar, 1994; Prasad, 1995 & Rehna, 1996) have investigated the relationship of Approaches to Studying with Scholastic Achievement. Kumar (1997a, 1998) studied the differences in Approaches to Studying between High and Low achievers and Study Approach and Cognitive Style. In most of the studies conducted abroad and India a positive influence of Approaches to Studying on student characteristics was noticed.

Both Learning Style and Approaches to Studying seek to develop and increase understanding of the qualitative differences in the way students learn and to provide a sound conceptual framework for evaluating individual differences. But these represent two different perspectives on student learning influencing academic achievement (Harvey, 1994).

As enormous researches reported, effective learning warrants an appropriate environment. Earlier works on psychology of learning evolved positive association between Classroom Climate and Student Achievement (Fraser & O'Brien, 1985; Fraser, 1986; Ramsden, 1989; Payne, 1992; Pierce, 1994; Henderson, 1995 and Hudley, 1998). The effectiveness of classroom teaching will depend not only on the efficiency of the teacher and nature of
teaching material but also on classroom environment and other special characteristics of learner (Bound, et al., 1985). Classroom environment depends not only on the physical factors of the classroom, but on social, emotional, educational and economic factors also and how students and teachers perceive the classroom situation for bringing about maximum interpersonal relationships, thereby creating atmosphere for effective learning.

The response of the learner to new experience is determined significantly by past experience through which the learner perceives the world. The way one person reacts to a given situation will not be the same as others and this becomes more obvious when learners from diverse backgrounds work together.

Various aspects of Classroom Climate especially, Classroom Climate and Achievement was studied by different investigators both in and out of the country. Classroom Climate and Performance (Weir & May, 1990); Classroom Climate and Task Behaviour (Short & Short, 1991); Classroom Climate and Motivation (Payne, 1992); Classroom Environment and Study Approaches (Yuen-Yee, 1994); Classroom Environment and Achievement (Goh & Fraser, 1995; Panikker, 1996; Sunitha, 1997; Sasidharan, 1997 and Lee, et al., 1999) and Learning Style and Classroom Climate (Bhargavi, 1999) were reviewed and examined thoroughly.

Only a limited number of studies were reported to evolve the association of Learning Style and Approaches to Studying in Indian context. Review of literature in this area of research has pointed out the considerable amount of conceptual overlaps relating with Learning Style and Approaches
to Studying. A detailed survey of related literature regarding variables affecting Academic Achievement disclosed that Learning Style, Approaches to Studying and Classroom Climate play active roles in making learning process profound and perfect. But the investigator could not locate studies dealing with the interaction effect of Learning Style, Approaches to Studying and Classroom Climate on Student Achievement. That is why the investigator decided to take up a study of this kind to find out whether the variation in classroom achievement is due to the single effect of Learning Style, Approaches to Studying and Classroom Climate or the combined effect of the three variables. The present study is significant as such an effort has not been reported in the Indian context before. The investigator being a social science teacher the study is restricted in the Achievement in Social Sciences of secondary school pupils.

1.2. STATEMENT OF THE PROBLEM

The present study is entitled as INTERACTION EFFECT OF LEARNING STYLE, APPROACHES TO STUDYING AND CLASSROOM CLIMATE ON ACHIEVEMENT IN SOCIAL SCIENCES OF SECONDARY SCHOOL PUPILS.

1.3. DEFINITION OF KEY TERMS

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

1.3.1. Learning Style: Learning style in this study refers to the general tendency of pupils to adopt similar set of learning strategies consistently across different tasks and settings (Eysenck, 1994).
1.3.2. Approaches to Studying: As used in the present investigation Approaches to Studying refers to orientation of pupils in studying academic subjects to which different strategies of learning, styles of learning and associated forms of motivations are merged.

1.3.3. Classroom Climate: Classroom Climate is defined as the totality of external surroundings including conditions, circumstances and events in education often considered the extent to which such surrounding facilitate learning (Hawes & Hawes, 1982).

1.3.4. Achievement in Social Sciences: Achievement in Social Sciences as used in the present study is the accomplishment or proficiency of performance in social sciences (cognitive domain) as measured using a standardised test.


1.4. VARIABLES SELECTED FOR THE STUDY

The following were the variables selected for the study.

1.4.1. Independent Variables

The Independent Variables selected for the study were

1.4.1.1. Learning Style (Four components viz., Environmental, Emotional, Sociological, Physical and Total score).

1.4.1.2. Approaches to Studying (Four components viz., Meaning Orientation, Reproducing Orientation, Achieving Orientation, Non-Academic Orientation and Total score) and

1.4.1.3. Classroom Climate (Total score only).
1.4.2. Dependent Variables

Dependent Variables selected for the study were *Achievement in Social Sciences* (Six Objective wise scores viz., Knowledge, Comprehension, Application, Analysis, Synthesis, Evaluation and Total score).

1.5. OBJECTIVES

Following are the objectives formulated for the study.

1.5.1 To study *whether there exists* any sex difference in Learning Style (Componentwise and Total score) or not for the Total sample and Subsamples based on Locale and Type of management of school.

1.5.2 To study *whether there exists* any sex difference in Approaches to Studying (Componentwise and Total score) or not for the Total sample and Subsamples based on Locale and Type of management of school.

1.5.3 To study *whether there exists* any sex difference in Classroom Climate (Total score) or not for the Total sample and Subsamples based on Locale and Type of management of school.

1.5.4 To study *whether there exists* any sex difference in Achievement in Social Sciences (Objective wise and Total score) or not for the Total sample and Subsamples based on Locale and Type of management of school.

1.5.5 To study the *main* and *interaction* effects of the three Independent variables on Achievement in Social Sciences (Objective wise and Total score) of Secondary School Pupils for Total sample.
1.5.6. To study the *main* and *interaction* effects of the three Independent Variables on Achievement in Social Sciences (Objective wise and Total score) of Secondary School Pupils for Boys.

1.5.7. To study the *main* and *interaction* effects of the three Independent Variables on Achievement in Social Sciences (Objective wise and Total score) of Secondary School Pupils for Girls.

1.5.8. To study the *main* and *interaction* effects of the three Independent Variables on Achievement in Social Sciences (Objective wise and Total score) of Secondary School Pupils for Rural sample.

1.5.9. To study the *main* and *interaction* effects of the three Independent Variables on Achievement in Social Sciences (Objective wise and Total score) of Secondary School Pupils for Urban sample.

1.5.10. To study the *main* and *interaction* effects of the three Independent Variables on Achievement in Social Sciences (Objective wise and Total score) of Secondary School Pupils for Government sample.

1.5.11. To study the *main* and *interaction* effects of the three Independent Variables on Achievement in Social Sciences (Objective wise and Total score) of Secondary School Pupils for Private sample.

1.5.12. To find out the *best predictor* of Achievement in Social Sciences from the set of three Independent Variables viz., Learning Style, Approaches to Studying and Classroom Climate.
1.6. HYPOTHESES

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

1.6.1. There will be significant sex difference in Learning Style (Componentwise and Total score) for the Total sample and Subsamples based on Locale and Type of management of school.

1.6.2. There will be significant sex difference in Approaches to Studying (Componentwise and Total score) for the Total sample and Subsamples based on Locale and Type of management of school.

1.6.3. There will be significant sex difference in Classroom Climate (Total score) for the Total sample and Subsamples based on Locale and Type of management of school.

1.6.4. There will be significant sex difference in Achievement in Social Sciences (Objective wise and Total score) of Secondary School Pupils for the Total sample and Subsamples based on Locale and Type of management of school.

1.6.5. The main and interaction effects of the three Independent Variables on Achievement in Social Sciences (Objective wise and Total score) of Secondary School Pupils will be significant for the Total sample.

1.6.6. The main and interaction effects of the three Independent Variables on Achievement in Social Sciences (Objective wise and Total score) of Secondary School Pupils will be significant for Boys.
1.6.7. The main and interaction effects of the three Independent Variables on Achievement in Social Sciences (Objective wise and Total score) of Secondary School Pupils will be significant for Girls.

1.6.8. The main and interaction effects of the three Independent Variables on Achievement in Social Sciences (Objective wise and Total score) of Secondary School Pupils will be significant for Rural sample.

1.6.9. The main and interaction effects of the three Independent Variables on Achievement in Social Sciences (Objective wise and Total score) of Secondary School Pupils will be significant for Urban sample.

1.6.10. The main and interaction effects of the three Independent Variables on Achievement in Social Sciences (Objective wise and Total score) of Secondary School Pupils will be significant for Government sample.

1.6.11. The main and interaction effects of the three Independent Variables on Achievement in Social Sciences (Objective wise and Total score) of Secondary School Pupils will be significant for Private sample.

1.6.12. Achievement in Social Sciences can be predicted using the set of three Independent Variables viz., Learning Style, Approaches to Studying and Classroom Climate.

1.7. PROCEDURE

The procedure adopted for the study is briefed as follows:

1.7.1. Sample

The study was carried out on a representative sample of 917 secondary school pupils in Kerala state. The basal sample was obtained using
proportionate stratified sampling procedure with representation given to factors like Sex (Boy/Girl), Locale (Rural/Urban) and Management category of schools (Government/Private).

1.7.2. Tools Used for the Study

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

1.7.2.1. Learning Style Inventory - LSI (Kumar, et al., 1996)

The style characteristics of the sample were measured using this Learning Style Inventory.

1.7.2.2. Approaches to Studying Inventory - ASI (Kumar & Das, 2001)

The study approaches adopted by the sample was quantified using the ASI. The inventory was developed and standardised by Kumar and Das (2001).

1.7.2.3. Scale of Classroom Climate - SCC (Usha & Sunitha, 1997)

This scale gave a measure of classroom climate as perceived by the sample.

1.7.2.4. Achievement Test in Social Sciences - ATSS (Kumar & Das, 2001)

The Dependent Variable Achievement in Social Sciences (Objective wise and Total score) was measured using the ATSS developed and standardised by Kumar and Das (2001).
1.7.3. Statistical Techniques Used for the Analysis of Data

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

1.7.3.1. Test of Significance of Difference Between Means

To study the sex difference in Independent Variables and Dependent Variables this statistical procedure was used.

1.7.3.2. ANOVA with $3 \times 3 \times 3$ Factorial Design

To understand whether variation in Dependent Variables be attributable to variation in the levels of Independent Variables Three-way ANOVA with $3 \times 3 \times 3$ factorial design was employed.

1.7.3.3. Scheffé Test of Post-hoc Comparison

ANOVA is followed by post hoc comparison of criterion means through Scheffé procedure. This was done to examine the levels of Independent Variables which have a significant main effect actually cause variation in the Dependent Variables.

1.7.3.4. Multiple Regression Analysis – Step wise

This statistical technique was used to predict the criterion (dependent) variable from the set of predictor (independent) variables.

1.8. SCOPE AND LIMITATIONS

The present study was intended to investigate the influence of Learning Style, Approaches to Studying and Classroom Climate on Achievement in Social Sciences of Secondary School Pupils. Appropriate standardised tools
were used for data collection. Data were analysed with utmost care and precision. Hence the investigator hopes that the study would yield reliable results, that can be generalised. The findings of the study may help educationists to reform teaching learning programme. Even then certain limitations which can hardly be avoided may creep into the study. They are the following.

1.8.1. The selection of Independent Variables that affect the Dependent Variables is confined to three major variables only viz., Learning Style, Approaches to Studying and Classroom Climate.

1.8.2. Selection of Dependent Variables has been restricted to Social Sciences only.

1.8.3. The study was conducted on one educational level i.e., standard IX, assuming it to be representative of secondary school pupils.

1.8.4. Objectives included in the Achievement Test in Social Sciences (ATSS) were those related only to Cognitive Domain of Bloom's Taxonomy.

1.8.5. Among various sociological variables (Classroom Climate, School Climate and Home Climate) only Classroom Climate was chosen for the study.

1.8.6. Selection of a few schools across the state intended for data were not representative of all institutions in the state.

1.8.7. The components of Learning Style and Approaches to Studying were not taken as Independent Variables in the Three-way ANOVA.
1.8.8. The components of Learning Style and Approaches to Studying were not considered as predictor variables for the Multiple Regression Analysis.

1.9. ORGANISATION OF THE REPORT

The presentation of this research report is as follows:

The five chapters of the report contain the significant aspects in different stages of the investigation are outlined against the chapter numbers.

Chapter I – An introduction to the problem, Need and significance of the study, Statement of the problem, Definition of key terms, Variables selected, Objectives and Hypotheses, A brief description of methodology, Scope and limitations of the study and Organisation of the report.

Chapter II – A theoretical overview of the independent variables along with review of related literature and meta analysis.

Chapter III – Methodology in detail, i.e., Variables selected for the study, Objectives and Hypotheses, Description of tools employed for the collection of data, Selection of sample for the study, Mode of data collection, Scoring and consolidation of data and Statistical techniques used for the analysis of data.

Chapter IV – Preliminary analysis and Major analysis of data collected and discussion of results.

Chapter V – A summary of the study – Study in retrospect, Objectives and Hypotheses, Procedure adopted for the study, Major findings of the study, Tenability of Hypotheses, Suggestions for improving educational practice and further research.