CHAPTER III
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This chapter includes the review of literature related to the variables included in this research namely, teachers' expectations, competency, teaching strategies, school quality and psychological differentiation in relation to students' academic achievement.

Teacher Expectations

The researches on teacher expectations indicated that there were some researchers confronted by some methodological constraints and thus failing to test the teacher expectancy model to their satisfaction. There were also researchers, who replicated the teacher expectancy effects and found them extremely meaningful in promoting student learning. Then there were the problems of natural or artificial effects of expectancy. The researcher has tried to incorporate here researches of all kinds.

Although Merton (1948) defined and illustrated the concept of self-fulfilling prophecy, and Clark (1965) identified low teacher expectations as causes of low achievement of students in ghetto schools, it was Rosenthal and Jacobson's study (1968) that brought the idea of teacher expectancy effect to centre stage in the teaching-learning situation, also popularly known as the pygmalion effect. The main thesis of teacher expectations of what pupils were able
to do, created a self-fulfilling prophecy, which actually raised or lowered the children's I.Q.s and level of scholastic achievement (Jensen, 1973).

Researches Having Methodological Limitations

A series of researches followed the inception of pygmalion effect and the findings have been contradictory in nature. Unfortunately, the Rosenthal and Jacobson study itself was marked by some methodological weaknesses and inappropriate statistical analysis (Thorndike, 1968; Snow, 1969; Jensen, 1969; Cronbach, 1970, Elashoff and Snow, 1971).

Some other investigators, who used the original Rosenthal and Jacobson paradigm, had not been able to demonstrate the existence of expectancy effects (Clairborn, 1969; Fleming and Anttonen, 1971; Jose and Cody, 1971). Kehle, Bramble and Mason (1974) studied the expectations of 96 fifth grade teachers in relation to variables like sex, race, intelligence and attractiveness as well as achievement. It was concluded that the expectations teachers held for elementary school children were extremely complex. Cooper, Findley and Good (1982) found that teachers' perceptions of the students' ability and the discrepancy between teacher-perceived ability and student tested ability were both positively related to relative achievement change. The amount of improvement the teachers expected was unrelated to other expectation measures or to achievement measures. Brophy (1983) found only a minority of teachers having major
expectation effects on their students' achievement, but such effects were minimal for most teachers because their expectations were generally accurate and open to corrective feedback. He found it difficult to predict the effects of teachers' expectations, since these interacted with beliefs about learning and instruction that determined teacher behaviour (so that similar expectations may lead to different behaviour). Also, because students differed in their interpretations and responses to teacher behaviour, similar behaviour could produce different student outcomes. Short (1985) tested the model of teacher expectations advanced by Brophy and Good and found no support.

Supportive Evidences

There have been many studies that have yielded positive findings. Beeze (1970) and Rothbart et al., (1971) found teacher expectations (based on biased intelligence test reports and teacher ratings) influenced the teachers' behaviour toward specific pupils in the classroom.

Cooper (1979) described a model outlining the cognitive processes through which teacher expectations could sustain a given level of achievement. The model suggested that teachers frequently gave affectively biased feedback to low expectation students and frequent feedback to high expectation students based on their effort expenditure. Differences in effort-outcome covariation perceptions led to less persistence and more failure on the part of lows than
highs, thus sustaining poorer performance. Shu (1979) in a study of 80, 4th and 6th/grade students and four teachers showed that students from whom their teachers expected high performance tended to display more interaction with the teacher, had their opinions accepted more often, scored higher on achievement motivation, peer status, academic achievement and personal adjustment than students whose teachers expected little of them. Fan (1980) investigated the effect of teacher expectations on students' mathematics grade and deportment of 205 1st graders. With intelligence factor controlled, teacher's expectations and students' self expectations both about maths and deportment scores were found significantly correlated. Kuo (1980) used path analysis and multiple regression analysis techniques and indicated that teacher expectations determined teacher behaviour and, in turn, influenced students' achievement motivation. A combination of teacher behaviours significantly predicted students' self-concept, achievement motivation, and academic achievement, with warmth being the most powerful predictor. Panda and Dash (1980) reported that self-fulfilling prophecies were a reality and simulated information based on comprehensive social, mental and personal cues, created expectancies which could vitally affect teacher assessment of pupils classroom performance.

Bagnar (1982) investigated the impact of achievement test results on teacher's expectations, within the framework of cognitive dissonance theory. Teacher expectations showed
little change as a result of achievement's test feedback, when test results for both under and over estimated students were rejected. Fry (1982) noted successfully the effects of teacher expectations and teacher control on the performance of pupils in a series of spelling and sentence construction exercises. Teacher's high expectations combined with high control motivated higher performance in subjects, especially boys, who were more influenced by the high control factor than the girls. Kujo et al. (1982) found that teacher's attributed the high performance of pupils, for whom they had positive expectations to internal factors and low performance to external factors, much more than of pupils from whom they had low expectations. Highly authoritarian teachers attributed the causality of performance in the direction of teachers' preestablished expectations more strongly than the low authoritarian teachers.

Roger (1982) commented that typically we entered into, interactions with others with a variety of expectations. These expectations made it possible for us to predict the behaviour of other people and in turn, to make appropriate adjustments to our own behaviour. Burger, Cooper and Good (1982) in their study of teachers attributing success and failure of students, found that teachers cited directions and instruction more often for failure than for success.

Dusek and Joseph (1983) conducted a meta-analysis of researches on teacher expectancies. They found that student
attractiveness, conduct, cumulative folder information, race and social class were related to teacher expectancies.

Blease (1983) discussed the mechanism of the self-fulfilling prophecy in relation to the concepts of feedback, pupil self-expectancy and the wider educational environment. He identified five categories of necessary conditions for the successful communication of teachers' expectations, namely 1) external conditions of school, 2) teacher's values and expectations, 3) pupils' values and expectations, 4) teacher behaviour, and 5) pupil behaviour. It was suggested that studies that failed to demonstrate the self-fulfilling prophecy effect did so because they failed to take such conditions into account.

Monk (1983) identified three teacher types on the basis of the self-fulfilling hypothesis related classroom behaviour and academic achievement. The analysis suggested that teachers affected the ways in which their pupils viewed the differential distribution of classroom achievement among their peers through the classroom management of lessons. It was concluded that the adoption of a symbolic interactionist perspective may allow a direct link to be made to pupils' classroom achievement as measured by end-of-year tests. Haynes and Johnson (1983) investigated self and teacher expectancy effects on academic achievement. Results indicated significant self-expectancy main effects on achievement as well as significant teacher expectancy and
self-expectancy interaction effects on the same measure of achievement. Cooper (1983) contributed to the formulation of the expectation communication model, which posited that the context and expectations influenced teacher expectations of control. A subsequent field test of this model and achievement attribution theory provided some support, but also indicated areas of needed revision, particularly with regard to differences in within-class Vs between-class processes and the effects of time of school year on the number of teacher self-fulfilling prophecies.

St. George (1983) studied nine-year-olds in five ethnically mixed New Zealand classrooms to investigate teacher's perceptions of the Polynesians and Pakeha pupils and the relationship of these perceptions to expectations in general. It was concluded that while teacher expectations effects did not severely bias childrens' learning, negative perceptions and expectations for Polynesians children led them to being treated similar to others who were expected to be of low ability. It helped them to maintain the lower achievement.

Proctor (1984) showed the dominant influence of school climate on classroom expectations and behaviour and indicated how information on student performance was fed back into the system to perpetuate the institutional 'prophecy' cycle. It also demonstrated the internal feed-back influence that maintained the classroom cycle on an ongoing basis.
Raudenbush (1984) observed that the better the teachers knew their pupils at the time of expectancy induction, the smaller was the treatment effect. The type of I.Q. test (Group Vs Individual) and type of test administration (Aware Vs Blind to expectancy - inducing information) did not influence the experimental results. The expectancy effects were larger for children in Grades 1 and 2 than for children in grades 3-6. However, significant effects reappeared at Grade 7.

Bratesani et al, (1984) tested the mediation model of teacher expectation effects that proposed that students acquired information about their abilities by observing the differential teacher treatment accorded to the high and low achievers in the class. They then revised their own achievement expectations and subsequently performed according to the perceived expectations. A hierarchical regression analysis showed that teacher expectations contributed more to the prediction of student achievement in high than in low differential treatment classrooms.

Smits (1985) found that students about whom teachers had low expectancies, showed self-perception of low ability. Van, Jan and Frans (1985) developed an observational instrument of 10 verbal and 10 non-verbal feedback student categories to register the evaluative feedback of teacher to 28 dyads of 2nd graders (bloomers and non-bloomers). Results indicated that teachers showed more negative non-verbal feedback (head movements) to bloomers, who were thought
unable to improve their performance than the non-bloomers. Teachers seemed to compensate their verbal feedback by giving the bloomers twice as much personally expressed verbal praise as the non-bloomers.

Jussim (1986) suggested a theoretical framework to understand and to guide future researches on self-fulfilling prophecies. He reviewed researches on classroom self-fulfilling prophecies in terms of three sequential stages: (a) in which teachers developed expectations, (b) in which teachers treated students differently depending on their expectations, and (c) in which students reacted to the treatment in expectancy-confirming ways. Dupuis and Badiali (1987) examined difference in teachers' expectations of students who were in high ability and low ability tracks. Findings suggested that only English teachers assumed significantly greater responsibility for students' successes and their more learner-oriented classrooms lessons. Teachers in high ability tracks used significantly greater numbers of directive instruments.

Cliffton and Bulcock (1987) examined the extent to which differences in achievement of 224 Yiddish speaking and 4,733 French speaking 9th graders fitted into normative and cognitive expectations of their teachers. Teachers were found to base their expectations on the intellectual ability and previous performance of students than on ethnicity. The expectations affected the teachers' assigned grades to a
greater degree, than the achievement on standardized examinations.

The teacher expectancy effects were also seen in their judgements of children's sociability, popularity, academic brightness, confidence, and qualities of leadership. Teachers revealed a systematic tendency to rate girls higher than boys. Significant sex differences were observed in teacher's ratings of attractiveness, academic brightness, sociability and confidence (Kenealy, Frude and Shaw, 1988). Doherty and Hier (1988) administered a battery of academic and self-concept and self-image tests to 64 male and 57 female 3rd and 4th junior school students and obtained teachers' ratings of these students on eight bipolar constructs. Teachers also predicted students' scores on academic tests prior to their administration. Subjects who received high predicted scores on both measures tended to be rated as more industrious, more mature, more placid, more reliable, and more tidy in their work than their classmates.

Natural Vs Artificial Expectancy

Some researchers have been caught between natural vs artificial expectancy debate. Brophy and Good (1970) using overt teacher behaviour toward low and high performing pupils found that expectancy effects based on naturalistic inputs were in operation. Seaver (1971) found that naturalistically induced teacher expectancies did influence pupil achievement in grade 1. Positive relationship between teacher's natural
expectations and children's achievement had also been reported by Palardy (1969) and Finn (1971). Dusek and O'Connell (1973) found that naturally occurring teacher expectations were significantly correlated to students' academic accomplishments, while their attempted experimental manipulation of expectancies had no effect on latters' achievements. Similar findings were also reported by Sutherland and Goldschmid (1974).

Hendels and Flanders (1973) who did not find supportive evidence for pygmalion effect, were of view that expectancy effects produced by artificial manipulations may not be equivalent to expectancy effects resulting from naturalistic inputs on teachers.

Students' Performance Inducing Teachers' Expectations

Reverse expectancy effects have been observed by some researches. Humphreys and Stubbs (1977) showed the evidence of student's grades causing teacher expectations rather than the reverse effect. Dumke (1977) reported that the Rosenthal effect was not produced on the basis of a single suggestion but required a strong, continuous influence. Students' expectations about themselves could also have a positive effect on their performance. It was necessary to make teachers aware of such tendencies and promote more attentive treatment towards weaker students' needs. Crano and Wellan (1978) in a series of cross-lagged panel correlational analyses over elementary school children indicated that
teachers' evaluation of children's school performance affected the latter's achievement to an extent exceeding their expectations.

Overview

As seen above, there were a large number of studies claiming the existence of Rosenthal effect, though a few negative studies to this effect were also observed. In Indian context, not much work has been done on teacher expectancy effects and none in the Primary school context. Thus, teacher expectancy effects in primary schools in tribal areas were chosen for inclusion in this research. It is hoped that this will have a special purpose and meaning in the context of tribal education.

Teacher Competency

Observed, Adams, "A teacher affects eternity: he can never tell where his influence stops". One of the most ambitious research initiatives into teacher personality and effectiveness was taken by Ryans in 1960. He found that successful teachers were more understanding, warm, friendly, responsible, systematic, stimulating, imaginative and enthusiastic than their less successful brothers and sisters. Schools may have excellent equipment, buildings, and text books, and although curricula would be appropriately adopted to community requirements, but if the teachers were misfits or indifferent to their responsibilities, the whole programme was likely to be ineffective and largely wasted
Teaching effectiveness research had been concerned with relationship between the characteristics of teachers, teaching acts and its effects on the educational outcomes in the classroom (Flanders and Simon, 1969). Duffy (1983) observed that the classroom was a complex environment in which a multitude of factors competed for the teachers' attention and a variety of forces shaped the teachers' behaviour. The competing forces were contextual in nature, which diverted teachers from students' achievement and instructional effectiveness was adversely affected. The contextual variables that influenced the instructional effectiveness were discussed under two categories, namely the outer community and the classroom. Blair (1984) discussed seven teacher characteristics associated with student achievement. The fundamentals of effective instruction included useful time, diagnosis, direct instruction, transfer of skills, flexible grouping, positive mind set and management. Reasons for the effectiveness of these characteristics focussed on their interdependent nature, the multitude of ways in which each fundamental could be achieved and the teachers' control over the fundamentals. It was asserted that the classroom teacher was the key variable in whether a child learnt to read well. Joshi (1984), Goyal and Agarwal (1984) reported that the performance of students and the quality of education depended upon the effectiveness or quality of teachers.
Harrow et al. (1985) surveyed elementary, middle and high school principals to determine the instructional problems of teachers under their supervision. Principals judged the difficulty levels of experienced teachers in ten instructional problem areas. Problem areas causing the most concern involved professional knowledge and skill rather than the subject matter competencies. Dembo and Sherri (1985) described the concept of Teacher Efficacy (TE) and its influence on teacher's classroom behaviour and student achievement. They reported that the high and low TE teachers differed in instructional practices, classroom organization and the provision of feedback to students experiencing difficulty. The development of teacher efficacy depended on the contents in which practice teaching took place, socialization and teaching experience, personality variables such as attributional style, school organization, teacher participation in decision making, and parent-teacher relations.

Check (1986) identified traits possessed by both effective and ineffective teachers. The effective traits were proper dress and grooming, extensive use of examples, employment of humour, effective communication in teaching and valid testing techniques and availability for extra help. The most negative teacher qualities were inability to communicate, boring and monotonous presentation, being uninformed in subject, being disorganized, aloofness and insensitivity to students' needs. Pal and Bhogoliwal (1987)
observed that the more effective teachers had higher intellectual levels as reflected in their intellectual capacity as well as intellectual functioning. They were characterized by a fairly higher level of differentiation and integration in their cognitive and perceptual functioning. They had superior capacity for imaginative and original thinking and were capable of viewing separate facts of reality as integrated wholes. On the other hand, less effective teachers had a low level of imagination and maturity and they stuck to a practical commonsense everyday view of things. More effective teachers had a well integrated ego-system than the less effective ones which enabled them to behave in a socially approved manner. They had lesser gap between their level of aspirations, imaginal and inner resources as compared to less effective ones.

Vashistha (1987) found that on professional values, effective teachers differed significantly from the ineffective ones but not on humanitarian, social/non-social, non-professional, traditional, non-aesthetic and extravagant values. Prawat and Anderson (1988) reported that a high level of autonomy on the part of the teacher was associated with a lower rather than higher level of social problem-solving ability of students. Veeraraghavan and Samal (1988) showed that students taught by highly effective teachers performed significantly better than those taught by low effective teachers, irrespective of the type of schools in which they studied. Teaching competence was defined as the possession
and acquisition of certain skills and abilities to carry on the teaching act with precision in order to bring about certain desired results (Bhogoliwal, 1988). More effective teachers differed significantly from the less effective teachers on intellectual, emotional and motivational dimensions. Hall et. al (1989) examined the teachers' attributions for the causes of Students' Academic success (SAS) and Failure (SAF) and the relationship between these attributions with teaching level and feedback practices. Results suggested that:

1. Internal, rather than external attributions were considered of greater importance in accounting of both SAS and SAF.

2. The importance assigned to individual attributions to account for SAS was the same for all teaching levels, but differed for SAF.

3. Subjects were less willing to assign SAF to absence of ability than to assign SAS to the presence of ability. It was emphasized that students be provided with information about the academic performance and given praise, as well as information about incorrect to incomplete performance.

Also important to the teacher competency were their academic achievements and training and a host of personal and social variables which are discussed below.
Teacher's Educational Qualifications and Training

Ryans (1969) reported that teachers who reported themselves to be outstanding students scored higher than others on understanding, friendly, responsible, businesslike, stimulating and imaginative democratic classroom practices, permissive educational viewpoints, verbal conditioning and attitude towards administrative and other school personnel. According to Debnath (1971) and Jangira (1972) academic achievement and training were important factors of effective teaching. Ponder (1977) found a high positive correlation between level of teacher certification and grades obtained by the students. Winsor (1978) concluded that teacher qualifications were positively related to students' performance.

Experience: Ryans (1951), Saxena (1968), Debnath (1971) and Mehta (1972) found positive relationship between experience and teaching competence. Ryans (1969) however, found that teachers with extended experience scored less than the less experienced teachers on most variables except the responsible and business-like classroom behaviour.

Meriam (1966) found no significant relationship between experience and competence. Ryans (1966), Coleman et. al, (1966), Mostellar and Moynihan (1972) found over all negative relationships that included a rise in effectiveness in the first five years, followed by a levelling and a decline. Longitudinal studies by Fuller (1969) and Felder
et. al. (1979) also suggested an increase in teacher effectiveness through the early years of a teacher career. Jencks (1972) and Smith (1972) analysed Coleman et. al, data and found a small positive relationships between teachers' prior professional experience and students' achievement. Spady (1973) concluded that teacher's experience must be regarded as an inadequately studied variable whose effect on student achievement remains obscure. Summers and Wolfe (1975) found that teacher experience had a very different impact on elementary school achievement levels. High achieving pupils did best under more experienced teachers, but these teachers lowered the learning growth of low achievers. Low achievers did best under new, relatively, inexperienced teachers who, perhaps had an undampened enthusiasm for teaching those who found it hard to learn. Lewis and Ouellette (1979) found that the extent of teacher training and length of experience were not significantly related to pupil achievement. Fagan and Ponder (1981) reported that teacher experience was not related to students' performance. Veeraraghavan and Bhattacharya (1989) found that teachers who had less than one year's service were the most effective teachers, and as the experience increased teacher effectiveness scores constantly decreased.

Age: Dale (1967) and Ryans (1969) indicated that age was an important factor in determining teacher effectiveness, Ryans (1969) commented that generally older teachers (55 years and above) were at a disadvantage compared to the younger
teachers, except from the standpoint of systematic and businesslike classroom behaviour. Kniveton (1976) using a sample of 88 school teachers, reported an age/sex interaction on a number of semantic scales. Female teachers under 27 years and male teachers of 27 years and over were less favourable in their attitude towards education than older female and younger male teachers. Veeraraghavan and Bhattacharya (1989) reported that younger teachers were more effective than the older ones.

Socio-economic Status:

Johnson (1958), Verma (1962), Dave (1967) Ryans (1969), Debnath (1971), Mehta (1972) and Khanuja (1973) found SES as an important factor in teaching competence. However, Saxena (1968) did not find any significant relationship between SES and teaching effectiveness.

Teachers' Attitudes, Aptitude and Interest: Seigol (1946) and Tenner (1954) found no relation between effective teachers and their value characteristics. Brookover (1945) and Tarpey (1965) found no relationship between teachers' interest and their effectiveness. However, negative relationship between the two had been reported by Schultz and Olsen (1955) and Saxena (1968).

Ryans (1969) found that teachers, who entered the profession because of its intellectual nature, because they liked the school, and because of the public and social service character of teaching, generally scored higher on
most of teachers' effectiveness characteristics. On the contrary, persons who became teachers, because they were advised (or perhaps urged) to do so by parents or relatives, or because of the attractiveness of teaching from the standpoint of desirable position in the community and favourable prospects for advancement, scored relatively low. McDonald and Elias (1976) found a significant relationship between four teacher aptitude factors (verbal fluency, memory, reasoning and flexibility and teacher behaviour) which was in turn significantly related to student gains.

Teacher-Student Ethnic Similarity and Achievement:

Vierra (1984) compared the reading achievement of two groups of Chicano students (3rd and 4th graders), one having white teachers and the other having Hispanic teachers. It was concluded that there was no academic advantage or disadvantage to matching student-teacher ethnicity when ethnicity was broadly defined.

General Teacher Effects:

Research findings on teacher behaviour and student achievement have been unsystematic, conceptually impoverished and methodologically unsophisticated (McDonald, 1975). Shavelson and Dempsey (1976) observed that consistent conclusions from research on teaching were that teacher effects on pupil outcomes were unstable (Rosenshine, 1970), that teaching acts themselves may be unstable (Moon, 1971),
and that most teaching acts are unrelated to student outcomes (Rosenshine and Furst, 1971; Heath and Nelson, 1974). Erlich and Shavelson (1978) suggested that the lack of relationship between measures of teacher behaviours and student outcomes could be attributed to either measurement problems or conceptual problems, or possibly both. Centra and Potter (1980) reviewed the related studies on school/teacher effectiveness research and student achievement and emphasized that several variables worked together and determined students' achievement. They suggested the use of structural analysis techniques (like Path analysis). Chaudhari (1986) argued that a holistic approach, rather than a component, competency by competency analysis of teaching, needed to be emphasized in research on teacher competence. The stress should be on a combination of quantitative and qualitative methodologies. Kundu (1988) reviewed various factors responsible for effective teaching but concluded that variables most suited for predicting teaching still remained obscure and inconclusive.

**SUMMARY**

The above review showed that a large number of studies focussed on measuring and evaluating teacher competency in relation to their age, sex, educational qualification and experience, attitudes, beliefs and values. Teacher competency had also been studied in relation to its influence on students' achievement. Studies revealed mixed results and offered fertile ground to explore the teachers
competency in primary school context. In the present study, teachers' competency would be used as a variable that could differentially affect students' academic achievement in the tribal context.

Teaching Strategy

Teaching strategy issues occupied a pivotal position in teaching-learning paradigm, as these were important to students' understanding of the subject matter and their subsequent academic achievement. Researches focussing on different methods of teaching found that differences in teaching strategy were crucial in teaching effectiveness. It had been widely recognised that the teaching methods should not be adopted haphazardly. According to Hutchinson (1965), teaching methods and techniques must take into account the expressed and implied demands: the character and strength of motivation in relation to varying degrees of individual capacity, the context and nature of previous education, the practical possibilities of time and place.

Different Types of Teaching Strategies and the Relative Efficiency:

According to Smith et al. (1967), the strategies may serve to induce, to engage in verbal exchange, to ensure that certain points in the discourse will be made clear, and to reduce the number of irrelevant or wrong responses as the students participated in the discussion, and so on. Flanders (1970) maintained that depending on the method of teaching,
teachers could be classified as direct teacher (who delivered lecture in the class and gave specific directions to students about their work) and indirect teachers (who put questions to students and permitted a lot of student initiated behaviours). He found that students taught by indirect teachers learnt more than students taught by direct teachers. Smith (1976) identified two teaching strategies on the basis of empirical studies, 1. Content-bound and 2. Content-free strategies. Content-bound strategies were primarily concerned about ways of interacting with the content of instruction, while content-free strategies focussed on the interactions between teachers and pupils. Smith maintained that both types of strategies were essential in the teaching process. Talking about the methods of teaching, Derek (1971) pointed out earlier that a favourable attitude towards the students was required before the methods can be effective. On the other hand, the development of a mixed method of questions and discussion added to the talk seemed to pay a good dividend, once it was established. It was essential for an effective teacher to have mastery of a range of teaching techniques. Stephens and Roderick (1971) pointed out that the effectiveness of a teacher depended on the degree and diversity of skills one had in communicating the material to students. Until recently teaching had been based almost entirely on class-room lectures supplemented by suitable reading materials and black-board instruction. This combination could be further supplemented by an increasing
range of instructional media.

In later years, strategies have been referred to managing the means or methods to reach a goal. In education, the term 'strategy' had been used as synonymous to "method" or/and "procedure" (Smith, 1976). Other pedagogical definitions of strategy referred to the sequencing of events and to extended and substantive exchanges among teachers and pupils (Dunkin & Biddle, 1974; Smith, 1979). The term strategy also referred to a set of teaching actions intended to attain desired outcomes. Bennet (1978) presented a model of teaching-learning processes desired to provide an interpretive framework for research on teaching at the primary school level, and the related review of research. The central features of the model for pupil achievement were quantity of schooling (nominal and actual), time allocated to curriculum, active learning time, content comprehended, and corrective feedback. Long (1979) used both inductive and deductive teaching methods to determine which method might be most effective in terms of student learning and generalizations, learning specifics, retention of knowledge, motivation and enjoyment process. Results showed no significant difference between groups on the knowledge of specifics, retention or enjoyment; however, subjects taught inductively scored higher on the knowledge of generalization and reported a higher mean score for motivation than the group taught deductively. Mohanty and Pani (1979) investigated effects of student-teacher classroom interaction
on the academic performance of students. Based on the Flander's Interaction Analysis, the classroom interaction was found to produce a statistically significant effect on the academic performance. Kilker (1982) argued that both individuation and group teaching had a place in the learning paradigm and the choice between them was largely a function of learning task, the skills and interests of the students and overall programme objective.

Fox (1983) described four personal theories of teaching. These were, Transfer theory, which viewed the students as a vessel to be filled, the Shaping theory viewed students as clay or wood to be moulded and formed. The Traveling and Growing theories viewed teaching as a guiding and encouraging process and focused on students' development. In the Traveling theory, the process of teaching was like helping students on a journey through unfamiliar, rough terrain. The growing theory viewed teaching as a matter of encouraging students in their personal growth and development. The first two theories were relatively simpler theories, while the latter two were developed theories and were more likely to be held by experienced teachers. All teachers had personal theories of teaching, which influenced the way teachers did their jobs, their attitude towards their subjects and their relationships with students.

In dealing with teachers' behaviour and students' outcome in higher education, Entwistle and Ramsden (1983)
commented that the attitudes and enthusiasm of a lecturer, his concern for helping students to understand, and particularly his ability to understand the difficulties experienced by students in dealing with a new topic, were all likely to affect the students' approaches and attitudes to studying. They further stated that future staff development programmes would thus have to shift away from the concern with teaching techniques towards helping lecturers to understand the effects of their teaching on students' attitudes and approaches to studying. Lecturers might also be expected to improve their teaching through a clearer insight into the effects of teaching on students.

Pierce and Houten (1984) described the ways in which students could carry out classroom tasks in the areas of delivering instruction, preparing materials, assessing progress, keeping records, and improving motivation. The formation of teacher-student partnership was found to enhance teacher effectiveness and enabled the teachers to assume a managerial role. Benefits for students included more individualized instruction, working cooperatively with peers, and taking more responsibility for their learning. Smith and Ernst (1984) studied whether 1). diversification of physical settings, and/or; 2). distribution of material vs cramming a lot of instruction into a short time could lead to the better retention of contents. It was concluded that diversifying the environment could result in greater efficiency of instruction.
Blair (1984) found that student achievement in basic skills was associated with certain teacher characteristics. He called them the seven fundamentals of effective instruction to maximize student achievement like, useful time, diagnosis, direct instruction, transfer of skills, flexible grouping, positive mind set and management. Chalon (1985) investigated instructional variables associated with academic proficiency among 30 elementary schools in El Salvador. No significant association was found between instructional variable and the academic proficiency of students. Palincsar (1986) characterized metacognitive instruction as endeavoring to teach students to plan, implement, and evaluate strategic approaches to learning and problem solving. Particular emphasis was given to an instructional programme termed reciprocal teaching, which was developed to enhance text comprehension. The teaching involved a dialogue between teacher and students that emphasised summarization of the text, question generation, clarification, and prediction about what will occur next in the passage.

Brophy (1986) reviewed researches that indicated that students achieved more when their teachers emphasized academic objectives in establishing expectations and allocation of time, use effective management strategies to ensure that academic learning be maximized, pace students through the curriculum briskly but in small steps that allow high rates of success, and adopt curriculum materials based
on their knowledge of students' characteristics. Teachers differed in how they performed on such instructional behaviour as giving instructions, asking questions, and providing feedback. Brophy concluded that any attempt to improve students' achievement must be based on the development of effective teaching. Stones (1986) suggested the ways to increase funds for systematic research on teaching skills as it was integral to teaching and the educational system itself. Obstacles to the development of knowledge about effective teaching techniques were identified along with the implications of the systematic approach for theories of human learning, training institutions and problems of generalization. Lecrec et al. (1986) examined the associations between instruction group and teacher monitoring of individual students and achievement over nine 1st and twenty-one 2nd year high school algebra classes. Achievement appeared to be related to the academic discourse of the teacher who was dispensing the instruction, lecturing in a large group context, asking questions, helping the student to give a correct answer, or giving feedback. Too frequent organization of such discourses had negative effects on achievement. Weinstein and Mayer (1986) advocated the role of elaboration and self-monitoring strategies and some other variables in affecting students' academic achievement.

Guskey (1987) described some of the essential elements of a mastery learning programme—that emphasized feedback, and correctness and congruence among instructional
components, and the ways in which teachers could easily and efficiently incorporate these elements in their teaching practices, along with procedures for evaluating their effectiveness in improving student learning. George (1987) synthesized the recent breakthroughs in research on effective teaching and highlighted the methods that have produced learning and achievement in the public school setting. It was suggested that the trainees would do well to examine the strategies that these teachers used with a view to adopt them in a corporate setting.

McKeachie (1987) reviewed researches on learning and teaching and recommended the ways in which learning and problem solving strategies should be taught. He suggested to practice strategies. The acquisition of skills and its effective application in new situations, feedback, were needed to help both teachers and students to become aware of their own repertoire of abilities or strategies for learning and thinking (metacognition). It appeared that students needed theories or mental models to understand why and when particular strategies will lead to successful action and motivation. In a factor analytic study of the teaching behaviours of secondary school teachers, Singh (1988) identified eight teacher skills. These were skill of questioning, skill of explanation, skill of black-board writing, skill of reinforcement, skill of introducing a lesson, skill of summarizing the lesson, skill of using teaching aid and skill of illustrating with examples.
Hussain (1989) investigated the attitudes of three groups of students in Nigeria regarding the dictation of notes by the teacher along with seven other teaching methods. Analysis of results showed that the groups did not differ on dictation and they were also in agreement on the preference for teaching methods. Comparative studies of different teaching methods and techniques have thus, shown no particular method was invariably time effective or productive and none was always ineffective, inadequate or unproductive. However, serious efforts were underway to demonstrate that certain techniques of teaching were certainly more effective than others.

Teaching Strategy Research Based On Learning Strategies:

Additional research on teaching strategy has proceeded parallel to the research on learning strategies. Pask (1976) in fact, in the learning context identified three strategies. These were, 'Deep strategy', 'Surface strategy' and 'Strategic strategy'. 'Deep strategy' placed considerable emphasis on details and procedures. The deep approach was internal to the contents of the subject or problem, and to the knowledge, experience and interests of the learner. Learners following this approach started with the intention of understanding the meaning of the subject, interacted actively with the author's arguments, related them to previous knowledge and their own experience and tried to see if the author's conclusions were justified by the
The 'Surface strategy' was external to the task and its requirements, and implied a process of learning in which alien material was impressed on the memory for a limited period and with the specific intention of satisfying external demands. There was no expectation that the content will become a continuing part of the learner's cognitive structure. Learner's intention was to memorize the parts of the information they considered important, guided by the type of questions they anticipated would be asked subsequently. The third was the 'Achieving' or the 'Strategic strategy' through which students sought to maximize their goals by strategic management of their time and intellectual resources in line with the perceived criterion of high success.

Marton classified the approaches used by students as 'deep' or 'surface' if they showed at least one clear indication on either of the two approaches. According to him the natural approach was a deep one (Marton, 1976). Marton and Saljo (1976) showed that students who gave a 'deep level processing account of their approach to a task, scored better on tests of understanding than students who described a 'surface' level processing approach.

Pask (1976) felt that the holistic strategy involved looking at the whole area being learned, taking a broader perspective, seeking interconnections with other topics and making use of the personal and idiosyncratic analogies. The
serialists failed to make use of the valid and important analogies and were unable to build up an overall map to see how the various elements of the topic interrelated and how the topic fitted into the subject area in general. Pask called this pathology - 'improvidence'. Pask described 'Globetrotting', as the tendency of the Holist to make appropriate or vacuous analogies. This pathology might also take the form of an overreadiness to generalize from the insufficient evidence to form hasty personal judgements. But there were students who were readily able to adopt task specific learning strategy to emphasize either comprehension learning or operation learning as appropriate and use both at tandem wherever possible. Pask labeled it as 'versatile' style of learning.

Biggs (1988) also reported three main strategies of learning namely deep, surface, and achieving (which combined organization and competition).

Overview

On the basis of preceding discussion, it could be argued that teachers and students in a classroom may be congruent or may vary substantially in their approach to teaching and learning respectively (dimension of social congruity). They may share or differ with regard to their culture, language, social class etc. Teachers may adopt either congruent or incongruent approach in the classroom and the different choices may have differential impact on
teaching-learning process. Such a situation was likely to commonly prevail in a predominantly tribal area but also having non-tribals and where both tribal and non-tribal teachers taught. It was therefore, logical to identify the predominant teaching strategies adopted by teachers in the teaching-learning environment of tribals and the relative influence of these on students' cognitive functioning and academic achievement.

School Quality

Schools were known to vary in structure, composition, resources, climate and hence in effectiveness. More than twenty five years ago, Barker and Gump (1964) illustrated the effects of school size on the behaviour and self-perceptions of high school students. They found that large schools were "overmanned", resulting in high rates of alienation and limited participation in school activities. Students in smaller, "undermanned" schools participated in more activities, were more likely to be in leadership positions, feel a greater sense of responsibility for their involvement than the students in the overmanned settings. Similar findings had been reported by Baird (1969) and Gabarno (1980).

Coleman et al. (1966) in a large scale survey summarized the effects of school environment on achievement, in the context of compensatory educational programme for the disadvantaged, in the following manner:
1. Low quality school environment affected the achievement of the disadvantaged much more adversely as compared to the advantaged. Improvement in the school quality will bring about an improvement in their scholastic ability.

2. Achievement was strongly related to the educational background and aspirations of students in the school. The principal way in which the school environments of low and middle SES children differed was in the composition of the student bodies. The school environment had a strong correlation with the achievement of low SES students ($r = .80$).

3. The amount of variation in achievement accounted by school characteristics depended much more on students than on the facilities and curricula.

4. A pupil attitude factor, which appeared to have a stronger relationship to achievement than all the school factors together, was the extent to which an individual student felt that one had some control over destiny. Low SES students had far less conviction than the middle SES to be able to affect their own environment and future.

Bowles and Levin (1968) and McPartland et. al, (1976) argued that school effects had been seriously underestimated, because student background variables like 'social class' were confounded with school differences. By controlling for social class, many studies controlled school differences. In addition, social class was really not an adequate substitute
Differences in the methods of analysis could bring about differences in school effectiveness. Hilton (1971) showed that cross-sectional students' achievement data produced results appreciably different from a longitudinal data set. Spady (1976) reviewed nearly 20 major studies on school effects. Each of the studies was found using some variation of linear regression analysis. Increased school expenditures, teacher experience, or class size, were more likely to be related to students' achievement only up to a point. Spady, cited a study by Ribich (1968), whose analysis of the project TALENT data indicated that there were limits to what schools could expect from increased expenditure. This threshold effect may also apply to other variables. He suggested the use of cross-tabular analysis or regression analysis to explore threshold or interaction effects. Measurable differences between schools appeared to have only a modest or slight relationship to how well students performed (Aaverch et. al, 1972). It was suggested that after adjusting for the effects of the SES of students between schools' differences were not highly related to student achievement (Mayeeske et. al, 1972; Mosteller & Hoyniham 1972).

Variations between schools and between school districts on variables like, school size, fiscal resources, salaries, pupil-teacher ratio, administration-teacher ratio, professional staff services, facilities (labs, books etc.),
average class size, urban school location, students' social class and racial composition etc. were related to variations in mean student achievement. (Bidwell & Kasard, 1975) Summers and Wolfe (1975) examined the interactions between student types and selected school and teacher variables. They found that many school resources affected student types.

Sinha (1977) observed that caste and the quality of schooling were significantly related to performance on perceptual measures. A comparison of SC and non-SC from superior and ordinary schools indicated that better performance was associated with higher caste status and better schooling. Irrespective of the caste, children from superior schools had significantly higher scores than their counterparts from ordinary schools.

Misra and Gupta (1978) examined the role of quality of schooling and exposure to pictorial materials in the acquisition of skills of sequential perception among children (9 - 11 yrs. of age) who were matched for years of schooling. It was observed that poor schooling and lack of environmental stimulation adversely affected the opportunities for learning. Rao (1978) examined six types of schools namely, those run by missionary agencies, corporation of Madras and Govt. of Tamilnadu and separate schools for boys and girls. Private management schools and girls schools showed higher academic performance.

Rutter et. al, (1979) concluded that more than
physical factors and school resources, differences in classroom processes (i.e. academic emphasis) were associated with variation in student achievement. Weinstein (1979) in a major review of research suggested that the physical environment of the school had effects on attitudes and behaviour of students and teachers, even though substantial effects on achievement were not consistently detected.

Opal and Sen (1979), Veeraraghavan (1985), Sengupta and Veeraraghavan (1985) found types of schools related to students' academic performance. Students from public schools showed significantly higher academic performance than those from missionary, municipal, corporation and state government schools. Sinha (1980) investigated the differences between the system of government and private schools in Patna and its effect on the competence of its pupils. The schools were ranked on the basis of physical facilities provided to the pupils (2 government and 2 Private schools, 2 boys and 2 girls schools). The findings revealed that despite the less facilities available and with comparatively high workload, the private schools were better in modes of teaching, interpersonal relationships within the school and had more competent students than the government schools. Sen and Goel (1982) observed the schools type related to results on CPM (Childrens' progressive Matrices), FDS (Forward Digits), and BDS (Backward Digits) scores. Heyneman et. al, (1983) explored diverse influences on pupil achievement in Africa, Asia, Latin America, and the Middle East by examining the
achievements of 13 and 14 year olds in science and found that in low PCI (Per Capita Income) countries, the influence of teacher and school quality was greater. Additionally at least four classes of variables namely, social organization, socio linguistics, cognition and motivation varied by culture and were differentially compatible with the expectations and routines of schools.

Schneider (1985) examined the quality of education received by 4th - 7th graders in four urban elementary schools. Specific school factors such as time spent on instruction had a significant impact on students achievement. Carpenter (1985) investigated whether the high school academic achievement of young people who remained in school through the 12th grade, varied significantly according to the type of secondary school (Government, Catholic or independent) they attended. Students in government schools were found more likely to achieve higher than those at non-government schools.

Singh et al (1986) compared the intelligence and achievement motivation of Santhal tribal high school students in missionary and non-missionary (government) schools. Missionary school students showed significantly higher I.Q. than students attending government schools. Quality of school life in different type of schools and its effect on student's attitudes were investigated by Raina and Arunima (1986). They chose five types of schools namely Convent,
Government school, Kendriya Vidyalaya, Private school and Public school from five different cities and indicated that types of school, sex and SES were important variables in influencing the students' perception of the quality of their school life.

Mishra and Sinha (1988) and Sinha (1988) reported that the quality of schooling did not contribute to the process of psychological differentiation directly (Superior Vs Ordinary Schools). However, it determined the development of psychological differentiation in early childhood in an important way. Veeraraghavan and Bhattacharya (1989) observed that school achievement varied significantly in terms of schools, with Public and Missionary schools having the highest achievement and government schools showing the lowest achievement.

Some researches however, did not yield supportive evidence. Hayuri (1983) studied 104 primary school children from two types of schools, progressive and less progressive and indicated that although there was no significant association between environment and academic achievement, a significant relationship existed between learning abilities and academic achievement. In another study Veeraraghavan and Samal (1988) did not find any significant effect of school type on student achievement.

Researchers have also advocated the idea of teachers coming from the same culture as students, believing that this
will ensure the compatibility between school and native cultures (Kirknes, 1986) and make learning for children easy and effective. Some others advocated total control of schools by the communities in which they were located, a condition that majority-culture members took for granted. Tharp (1989) emphasized the role of psycho-cultural variables in the teaching and learning in schools.

Research evidence also pointed out variability in student learning outcomes within schools than between schools. Within school conditions include administrative organization, instructional organization, student-peer groups, class size, quantity of schooling and school environment or ambience (Jencks, 1972; McPartland et. al, 1976; Spady, 1976 and Barr and Druben 1977).

Overview

The above review indicated that schools varied structurally as well as functionally and different types of schools have differential effects on students' academic achievement. In this study, the school quality had been introduced as a variable in cognitive and academic domains because of its logical relevance predominantly in the tribal context.

Psychological Differentiation

In recent years emphasis has shifted in cognitive psychology from ability dimensions to process variables. Researchers have been engaged in unravelling the processes
underlying the behavioural manifestations. Psychologists have thus, developed models of process differences (Witkin, 1978, Sahoo, 1984). Common to all theory and research on cognitive style had been the emphasis on the structure. Structure referred to how cognition was organized. Thus, cognitive style referred to the ways in which thoughts could be structured. Behavioural consistency across situations was considered as the product of this structure.

Initially Witkin et. al, (1962) developed the theory of 'Psychological Differentiation to explain communality in behaviour in several areas of psychological functioning. The framework was dynamic and facilitated numerous researches. The theory of psychological differentiation included field independent and field dependent cognitive styles as two pervasive dimensions. It was argued that when an individual interacted with the environment, the responses varied along a continuum from articulated Field Independent (FI) to global Field-Dependent (FD). These two end points defined the polar extremes of a continuous distribution with the majority of individuals lying in the middle range. Initially FI and FD were conceived as an individual's tendency to rely on external or internal referents as guide for actions. Gradually these came to refer to the ability to overcome an embedding context in perceptions. They referred to analysis and structuring in intellectual and perceptual domains. This was referred as cognitive style.

Witkin et. 'al, (1979) argued that the concept of FI-
FD was aligned with the construct of self non-self segregation. Initially it was the dimension of individual differences in tendency to rely on body versus visual field as a referent in perception of the upright. Later it was referred to as the ability to overcome an embedding context in perception. In its current version, it had the extent of autonomy of external referents. The status has thus, changed from a subsidiary construct to a higher order construct.

The social-interpersonal correlates of the FI construct provided substance to the cognitive style designation. It had been conceived as a bipolar process variable having no high or low end. Its value-neutrality was most prominent in the cross-cultural perspective (Witkin and Berry, 1975). Anchored to cultural contexts, it was found that FI and FD people had behaviours adaptive to different sets of ecological situations. The developmental studies have found it pervasive and stable over time (Witkin et al., 1962; Witkin, Goodenough and Karp, 1967). In several ways, the broadened definition of field-dependence, field-independence had been consistent with the definition of style (Witkin and Goodenough, 1981).

The ecological and sociocultural factors remained important in determining Psychological differentiation of individuals. These factors were complementary to each other and were related to real life situations. Berry (1976) had proposed a model based on the sociocultural dimensions. The basic proposition of this model was that a knowledge of the
physical features of the ecology of the groups could be helpful in the prediction of their culture and thereby in their psychological differentiation.

According to Witkin and Berry (1975) a high probabilistic relationship existed between the subsistence economic base of a society and its socialization emphasis. Low food accumulating societies were found to emphasize assertion which included achievement and self-reliance. However, high food accumulating societies emphasized compliance, obedience and responsibility ratings. Overall greater emphasis on nurturance and responsibility for girls; and achievement and self-reliance for boys were observed across cultures. Witkin and Goodenough (1981) investigated how different child rearing practices and parental behaviours in different cultures differentially affected children's psychological differentiation. Parental role played a significant role in children's psychological differentiation. Father's absence led to greater FD and lower disembedding among boys and girls (Witkin and Goodenough, 1981).

Studies on the effects of maternal absence did not yield consistent results (Schooler, 1972). Girls who identified less with mothers and who viewed their mothers as rejecting were found to be relatively more FI (Nilsson et al, 1973; Constantipole, 1974). Witkin and Goodenough (1981) suggested that the separation from nurturing mother provided scope for greater differentiation.
The relationship between family type and psychological differentiation was interesting. Nuclear family produced higher differentiation than the extended family structure (Claeys et. al, 1977, Witkin et. al, 1974, Holtzman et. al, 1975). No significant differences in differentiation were found among monogamous, polygamous and polyandrous families in India. However, a trend towards greater differentiation was marked in monogamous families (Bisht, 1982).

Tight societies encouraged the developments of FD cognitive style and loose-societies favoured the development of FI cognitive style (Berry, 1966; Dawson, 1967a, 1967b). Sex differences were also observed in tight than in loose societies (Witkin and Berry, 1975; Van Leeuwen, 1978). The tight societies had 1) greater role diversity, 2) greater emphasis on autonomy in the socialization of boys than girls and 3) well defined sex role expectations.

Individuals in non-western and non-industrial cultures experienced difficulties in interpreting pictures and photographs and in solving spatial-perceptual problems (Hudson, 1962, 1967; Deregowski 1968; Jahoda, 1971). Performance of semi-urban industrial groups was found better than non-industrial rural groups on pictorial perception (Muralidharan, 1970; Bevli, 1974a, 1974b).

Jahoda et. al, (1976) in their cross-cultural study in Ghana, India, Scotland and Zambia, however, did not find any differences between industrial and non-industrial
countries' in processing pictorial materials. In industrialized societies, sex-role socialization was considered responsible for the greater FD among women. Cross-cultural studies showed that sex difference was "uncommon in mobile, hunting societies and prevalent in sedentary, agricultural societies" (Witkin et. al, 1977).

Modern institutions like school, factory and mass media in urban centres have distinctly changed the quality of life of people compared to those living in rural areas. Urban samples were found to have more FI than rural samples in various cultures (Okonji, 1969; Smith, 1971; Weitz, 1971). Durojaiye (1971) found that the rural sample was more FI than the urban in east African rural and urban samples. Positive findings have also been reported by Sinha and Bharat (1985) and Sinha and Mishra (1982). Chatterjee and Paul (1982). Sharma and Huja (1982) did not find any significant difference between urban and rural samples. Haggard (1973) found boys to be more FI than girls. Pandy and Pandy (1985) found both sex and urbanism to be important predictors of FI-FD, but the interaction effect was not significant. Urbanism was a stronger predictor of cognitive style. Males were more field independent. Tharakan (1987) studied the effect of rural and urban up-bringing on cognitive style in Nigeria and found that urban males showed more field independence than FI urban females. Sex differences did not affect the cognitive styles of rural adolescents.
Cole and Scribner (1974) observed cognitive changes occurring due to experiences in school rather than maturational changes. Significant correlations were noted between education and the measures of cognitive style (Wolber, 1966; Mac Arthur, 1975) Some cross-cultural studies reported that schooled subjects performed better on tasks requiring analytic discrimination (Dawson, 1967a, 1967b, Myamboo, 1972; Witkin and Berry, 1975; Berry, 1976; Stevenson et. al, 1978; Rogoff, 1981).

Studies on pictorial perceptions (Deregowski, 1968a, 1968b; Mishra, 1976), depth perceptions (Hudson, 1962, Mundy Castle, 1966) and on cognitive and perceptual tasks (Chapiro, 1960; Wagner and Heald, 1979; Cole et al, 1974; Serpell, 1979), have shown that schooled samples; performed better than the non-schooled samples. Effect of schooling was stronger if coupled with urban residence or/and age on the acquisition and development of skills of pictorial perception. It had been found more effective in case of non-tribals than the tribals (Sinha, 1984). In a recent investigation Sinha (1989) studied the role of industrialization, urbanization and education in the development of cognitive style among Santhal tribe. Results indicated that all the three variables had significant effects on children's psychological differentiation. There were no sex differences in psychological differentiation. Parental income was found to have a significant effect on Block design Test but not on the Story Pictorial EFT.
Higher scores of SPEFT correlated with higher income.

Cognitive Style and academic achievement:

Vaidya and Chunsky (1980) found that field independence was related to high mathematics achievement, especially on the concepts and applications sub-tests in all the grades from 2 to 4. High operativity was related to high achievement in mathematics concepts only in Grade 2. Watkins and Astilla (1980) measured FI, general I.Q. and school achievement. The data supported the proposition that FI shared a small but significant amount of variance in school achievement, after the variance in intelligence was controlled. Majeed and Ghosh (1981) and Sharma and Huja (1982) found high achievers to be more field independent than low achievers.

Shade (1983) in her research on cognitive strategies and determinants of school achievement suggested that high achievers had predominantly field independent style, where as low achievers had predominantly field dependent style. Saracho (1984) showed that the students' cognitive styles and grade level were related to each other as well as to the student's sex. Garlinger et. al, (1986) reported the positive effects of matching students and teachers on FI styles on student's academic achievement. Santhakumari (1988) examined the differences in the degree of differentiation, spatial ability and language representation by sex and showed that differences were due to differences in cognitive style.
in the rate of regional specification and lateralization of functions.

Overview:

The above review highlighted the role of socio-cultural factors in determining and explaining psychological differentiation. However, there were very few studies reporting on the relation of psychological differentiation and academic achievement of school students in the tribal cultural context and then relating these to teacher attributes.