CHAPTER III

REVIEW OF LITERATURE
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This chapter attempts to explore the inter-relationships amongst the variables of the present investigation by tracing the earlier scientific studies conducted in these fields. In any research endeavour, it is necessary to review the past studies and empirical findings in order to understand the nature of relationships amongst the variables of the study, thereby facilitating the formulation of hypotheses. In the present context, an attempt has been made to unfold the nature of relationship of intelligence, parental involvement, and children's motivational resources (viz., control understanding, perceived competence, and self-regulation) with academic achievement, as well as the inter-relationships of these motivational resources with intelligence and parents' involvement. This chapter, therefore, covers the review of literature pertaining to such issues.

ACADEMIC ACHIEVEMENT IN RELATION TO INTELLIGENCE

There is a very close relationship between intelligence and academic achievement. These two variables are in fact, so interwoven that it would not be wise to try to understand scholastic efficiency without considering intelligence.

It is often observed that an intelligent person tends to comprehend facts faster and better. As a result, such an individual is likely to fare well in studies, whereas a person with sub-normal intelligence may hardly get through. A genius, at the other extreme end, may succeed in attaining the ultimate, exhibiting a standard of excellence in whatever he undertakes. So, differences in intelligence tend to reflect upon an individual's scholastic attainments.
The recognition of the crucial part played by intelligence in explaining academic accomplishments had been realized right in the beginning of this century. As early as 1917, Burt showed that intelligence was the predominant constituent of general educational ability. Brooks (1924) found correlations between reading ability and mental age (holding chronological age constant) ranging from .391 to .773 among children in fourth to seventh grades. Hewes et al. (1924), using 1,007 retarded children, found the correlation between Stanford-Binet mental age and school marks in reading to be .68. Amos (1931) contended that examinations and intelligence tests measured abilities which played an important role in the determination of school success. Others who examined the relationship between intelligence and reading ability were Merrill (1921), True (1925), Hawthorne (1935), and Mellone (1942). Freeman (1942) reported that the correlation between intelligence and academic achievement at the elementary school level varied from .40 to .60 with a mean value of .51 approximately. On the other hand, Eysenck (1947, p. 21) stated that studies analyzing the relation between intelligence and academic achievement usually reported correlation coefficients ranging from .3 to .7 with the mean in the neighbourhood of .5. Based on literature review, Eysenck concluded that tests of intelligence showed correlations with university achievement of between .5 and .6 when suitable tests were chosen and conditions of testing were favourable. Green & Farquhar (1965) reported the correlation between these two variables to be ranging from .01 to .90.

There are many studies which have followed and provide evidence for the significant and positive correlation between intelligence and academic achievement (e.g., Kemp, 1955; Lewis, 1967; Sinha,
Support for this relationship has been found at all the school levels. Some studies keeping into account children's age level have been cited below.

Sewell & Severson (1974), in a study conducted on first-grade black children, found that intelligence (as measured by Wechsler Intelligence Scale for children) correlated moderately with achievement. Reilly et al. (1986) also found support for this relationship for young school-aged children.

Kohn & Rosman (1974) reported intelligence (as measured by Stanford-Binet test) to correlate significantly and positively with three second-grade achievement criteria - word knowledge, reading, and arithmetic (r = .59, .61, and .61 respectively, p ≤ .01).

In another study by Crandall, Katkovsky, & Preston (1962) on children equally distributed in the first, second and third grades (from different socio-economic status), intelligence correlated .54 with arithmetic achievement test performance and .62 with their reading test performance.

Oakland, Wechsler, Bensusan, & Stafford, in a recent study in 1995, examined conceptual and test-related intelligence among 214 Brazilian students aged 5-11 years. Tests included the Progressive Matrices and Draw A Person. Results showed that intelligence correlated significantly with achievement, grade repetition and school absences.

Sauer & Gattringer (1987), in a study on 651 fourth graders too, confirmed the hypothesis that intelligence would be the most important predictor for school achievement. Similar findings have been reported by Schneider & Bös (1987), who investigated the relative importance of
cognitive and non-cognitive student characteristics in predicting school achievement. Eighty-seven fourth-grade boys completed a variety of instruments assessing such cognitive and non-cognitive characteristics as intelligence, concentration capacity, achievement motivation, anxiety, and socioeconomic status. The results revealed that cognitive characteristics were by far the most powerful predictors of school achievement, although non-cognitive variables (such as anxiety and achievement motivation) did have an indirect influence on achievement.

In a study by Basu & Bose (1979), the relations among manifest anxiety, intelligence, and school achievement of children in fifth, sixth and seventh grades were investigated. All the correlations between school achievement results and intelligence were found to be positive and significant.

Barton, Dielman, & Cattell (1972) performed regression analyses to predict achievement from personality and intelligence variables of 169 sixth graders and 142 seventh graders. They concluded that the personality factor "conscientiousness" and intelligence predicted achievement in all areas (p<.01).

Riedel (1980) investigated self-esteem, achievement, and intelligence among students of three ethnic groups in grades seven and eight. The correlation between intelligence and achievement scores was found to be positive and significant.

Schicke & Fagan (1994) examined the contributions of self-concept and intelligence to the prediction of academic achievement among a total of 121 fourth, sixth and eighth graders. Results from regression analysis revealed that intelligence accounted for the maximum variance in achievement.
Mehdi (1977), in his study on creativity, intelligence and achievement among seventh and eighth-grade boys, found the correlation between intelligence and academic achievement to be .382.

Singh & Sinha (1986) conducted an investigation on 150 male Indian eighth graders from scheduled and non-scheduled castes, and found support for this relationship between intelligence and educational achievement.

Entwistle & Welsh (1969) examined this relationship among 2,538 Aberdeen school children (N=1,293 boys and 1,245 girls), who had been tested on various occasions between the age of ten and fourteen years. The correlations of attainment at the age of 14 years with verbal reasoning were found to be .834 for boys and .845 for girls, while those with non-verbal reasoning were .664 for boys and .696 for girls.

The relationship between intelligence and academic achievement has been confirmed not only at the elementary and middle school levels but also at the high school level. A few studies have been cited below to testify this association.

Mathur & Hundal (1972) examined the relationship between school achievement, intelligence and socio-economic background factors in a sample of one hundred students studying in ninth class. The correlation between intelligence and achievement, where the socio-economic background factors were not partialled out, was .82, but the partial correlation (controlling for socio-economic status variables) was found to be .68.

Still in another study by Trotman (1977) on ninth-grade girls, the correlation between intelligence and grade point average was reported to be .47 for girls coming from black middle-class families, and .38 for girls belonging to white middle-class families.
Jarial (1981), in a study on ninth-grade students, found that intelligence and academic achievement were positively and significantly related among all the four groups, i.e., males, females, arts and science students \( (r = .875, .776, .819 \text{ and } .813 \text{ respectively}; p < .01) \).

Dibble (1967) studied the relationship of certain factors with academic achievement of public high school students of Fairfax County, Virginia. He found that the extent of correlation between intelligence and academic achievement was .48 \( (p<.01) \), with intelligence contributing sixteen percent of the variance in the criterion variable.

Keith (1982), in a vast study on 20,364 high school seniors, reported a correlation coefficient of .422 between ability (including scores on both verbal and non-verbal test) and grades.

Grewal (1985) conducted a study on 355 boys and 200 girls from sixteen higher secondary schools in India. He found that intelligence was one of the main sources of variation in school achievement.

Saleh (1985) investigated the influence of schooling, student background and academic ability on academic achievement in Indonesian public general senior high schools. Academic ability was found to have a significant effect on academic achievement, although other explanatory variables also shaped this process of achievement.

Fehrmann, Keith, & Reimers (1987), in a study on 28,051 high school seniors, found that intelligence emerged as the most powerful predictor of academic achievement.

While the studies mentioned above have used a general or summative index of academic achievement, efforts have been made by various psychologists to study the relationship of intelligence with various school subjects.
Malik (1977), in a study consisting of a stratified random sample of 230 tenth-class students from private and government high schools of Ajmer in India, reported that intelligence and academic achievement in Chemistry are highly correlated variables.

Sudhir & Muraleedharan Pillai (1987) administered a science achievement test, a group test of intelligence and socio-economic scale to 146 male and 165 female Indian secondary school students. The study revealed that high-SES and high-IQ subjects had higher science achievement scores than low-SES and low-IQ groups.

Sabherwal (1995), in a study on 100 orphanage-reared, 100 home-reared deprived and 108 non-deprived children, found that for the entire sample, verbal IQ, performance IQ, and full scale IQ correlated significantly with total academic achievement and achievement in five school subjects, viz., mathematics, English, Hindi/regional language, science and social studies, with the magnitude of relationship varying from low to medium. She further reported that verbal IQ was the best predictor of academic achievement for all groups of subjects and the total sample.

All the studies mentioned above have been conducted on school-going students. Research on college students has also been conducted in this field, and a few studies pertaining to this age level have been cited below.

Lewis (1967), in a multivariate analysis of variables associated with academic success within a college environment, reported that ability appeared to be significantly related to academic achievement.

A study by Karris (1976) revealed that one of the best predictor variables of grade point average after one year of college academic study
was intelligence, which accounted for 3.88 percent of variance in the criterion variable.

Wesley (1994) tested ability, high school achievement, and procrastinatory behaviour as predictors of college performance. The results showed that ability (as operationalized by total Scholastic Aptitude Test score) accounted for a significant portion of variance in college grades.

Brodnick & Ree, in a recent investigation carried out in 1995, studied Spearman's 'g' in relation to collegiate academic performance and socio-economic status. The results confirmed that psychometric 'g' accounted for a substantial proportion of the variance in academic performance.

A few studies conducted on Indian college students also provide support for this relationship. For instance, Desai et al. (1970) found intelligence to be positively related with educational achievement.

Study by Singh & Pandey (1970) (on arts' students of B.A. part-I and pre-university students) indicated that there was a positive correlation (p<.01) between intelligence and academic achievement. Similar findings were reported by Sinha (1970).

Gakhar (1986) investigated the correlation of intelligence and personality with academic achievement in four groups of 50 college students each in science, commerce, arts, and home science. On the basis of the results obtained, it was concluded that intelligence was more closely associated with achievement as compared to the personality factors in all the four groups.

The review of literature reveals that there is a plethora of studies which support the positive correlation between intelligence and academic achievement. However, this relationship is not an "ever-green"
phenomenon that has been obtained by one and all. Investigations carried out by several researchers indicate that there exists no significant relationship between these two variables, and some of these studies have been mentioned below.

Pelechano (1973), on the basis of his study conducted on 82 female students (with a mean age of about sixteen years), concluded that intelligence and personality variables were not systematically related to academic performance, while some motivational variables were related. Contractor's study (1977) too, showed that there was no definite relation between intellectual capacity and educational attainment of B.A.(third year) students.

Thus, there is no "a priori" justification or consistency in the relationship between intelligence and academic achievement (Thorndike, 1963, p. 183). So, there is no reason to expect a one-to-one correspondence between the two. The variations in achievement could be due to the intervening non-intellective, behavioural and environmental factors which exercise a considerable influence on achievement. An investigation into the effect of these non-intellective variables on academic achievement is necessary in order to unravel the intricacies of variations in the educational performance of individuals.

One such variable which has not been much explored, and which exerts a considerable influence on academic achievement is parental involvement in children's schooling.

ACADEMIC ACHIEVEMENT IN RELATION TO PARENTAL INVOLVEMENT

Parental child rearing practices constitute a major source of influence on children's behaviour. Right from birth, these child rearing practices come into play and influence the child's all-round
development. In particular, there is considerable evidence (e.g., Saleh, 1985) showing how the academic growth and performance of the child is affected by these parental attitudes and behaviours. Oakland, Wechsler, Bensusan, & Stafford (1995) have, in fact, stressed that parental qualities exert at least as strong an influence on achievement as does intelligence.

Several research programs have shown that variables such as parental belief systems, expectations, styles, and behaviour patterns are related to academic or cognitive outcomes in children (e.g., Hess, Shipman, Brophy, & Bear, 1969; Parsons, Adler, & Kaczala, 1982; Sigel, 1982; Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Grolnick & Ryan, 1989). A number of studies have shown associations between home characteristics, demographic variables, and achievement-related outcomes (e.g., Jencks, 1972; Marjoribanks, 1980; Belz & Geary, 1984). Longitudinal researches too, have demonstrated the role of early mother-child interaction in predicting children's later cognitive and academic development (Estrada, Arsenio, Hess, & Holloway, 1987).

Recently, large-scale research endeavours have begun to link specific attributes of parent style or behaviour to child achievement and adjustment in school (e.g., Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Stevenson & Baker, 1987). Several parenting styles have been delineated. However, the parental attribute of specific interest to the investigator in the present context is parental involvement in children's schooling. The theoretical framework of this variable has already been described in the previous chapter. In the present context, studies analyzing its relationship with academic achievement would be dealt with.

If the past literature is reviewed, one finds that the effects of parental school involvement received less attention from the
developmental psychologists as compared to other parental child rearing practices. However, its study was firmly established amongst the educationists and sociologists. The current interest in this phenomenon evolved from the sociological theories which noted the importance of family background factors in predicting school achievement. For instance, Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, & York (1966), and Heyns (1978) found that parental education played an important role in determining school achievement. Theorists then began to investigate the processes through which familial background factors could exert influence. Dave (1963) and Wolf (1966) described how a variety of specific "in-home" activities of parents could influence the school-specific cognitive skills of their children, while Spaeth (1976) found that exposure to school-related materials had a significant effect. Related to these studies were the large-scale studies in the "family-press" tradition that demonstrated the association between familial environmental factors and school achievement (Plowden, 1976; Marjoribanks, 1979), thereby highlighting the role of family press towards achievement (Marjoribanks, 1972). These studies, however, assumed an image of the family as passive in its transactions with the school, even while viewing the family as actively creating an effective in-home learning environment. They viewed the home and school as separate entities, and the parents as passive with respect to their child's schooling (Stevenson & Baker, 1987).

A more active view of parents is inherent in the present notion of parental involvement, with parents assuming a critical role in the educational process. Educational researchers have especially been interested in the effect of parental school involvement on student performance with a view to facilitate student achievement by drawing
parents into the educational stream (e.g., Becker & Epstein, 1982; Baker & Stevenson, 1986; Epstein, 1987; Stevenson & Baker, 1987).

Many studies have provided support for the positive effects of parental involvement on children's achievement. For instance, Shanahan & Walberg (1985) tried to explain the fixed and alterable conditions which could influence the achievement of 26,279 tenth graders in reading, writing, mathematics, science, and civics. The findings indicated that those variables beyond the control of educators (i.e., amount of homework completed, television viewing, parental involvement with education) explained much of the achievement variation.

Baker & Stevenson (1986) examined the responses of 41 mothers of eighth graders, who were beginning the transition from middle school to high school. The results showed that parents actively managed their child's school career in ways that could have direct consequences for their child's educational achievement.

Fehrmann, Keith, & Reimers (1987) explored the direct effects of perceived parental involvement on grades, and the indirect effect of parental involvement on grades through TV time and time spent on homework. Findings indicated that parental involvement had a positive effect on grades and led to increased time spent on homework.

Stevenson & Baker (1987) conducted an extensive study on school-aged children ranging from 5 to 17 years of age. They found that children, of parents who were more involved in school activities, did better in school than children with parents who were less involved.

Teachman (1987) contended that parents used resources to create a home environment that was conducive to higher attainment in education.
Dornbusch, Elworth, & Ritter (1988), based on the responses of 7,836 high school students, found that adolescents who reported that their parents responded to the grades they received with extrinsic rewards or punishments, or remained uninvolved, expended less effort in school and had lower grade point averages.

Goldenberg (1989) examined parents' effects on children's academic group placement, suggesting that parental involvement might affect children's reading achievement through its effect on academic grouping. The author presented the case studies of three Hispanic first graders at risk for reading failure. In two cases out of the three cases considered, parents facilitated children's reading achievement through home teaching of the school reading curriculum and/or behavioural cueing for appropriate classroom behaviours. Observations and interviews suggested that parental actions increased children's reading skill acquisition or motivation, which resulted in higher group placement of those children. The third child did not receive any comparable actions from the parents, and was placed and kept in a very low reading group. The three cases thereby, suggested that parents could be instrumental in keeping low-achieving children from falling into ever-lower groups and behind grade-level norms.

Reynolds (1989) found that the cognitive readiness of children on entering kindergarten had influential indirect impact on all first-grade outcomes. Significant direct or indirect effects were found for the intervening variables of motivation, peers, parental involvement, and mobility on achievement.

Pulkkinen (1990) studied three aspects of adolescent future orientation: cognitive, affective, and motivational. The results indicated
that memory of the parents' time for the child explained all the three aspects of adolescent future orientation.

Stevenson et al. (1990) made an attempt to understand some of the reasons for the high academic achievement of Chinese and Japanese children as compared to US children. Background information showed much greater attention to academic activities among Chinese and Japanese children. Members of the three cultures were found to significantly differ in terms of parents' interest and involvement in their children's academic achievement, parents' beliefs and expectations concerning their children's academic achievement, and parents' and children's beliefs about the relative influence of effort and ability on academic achievement.

Snodgrass (1991) analyzed the contribution of parents in their children's education. The effect of parental involvement on academic success was investigated from primary through secondary school levels. The findings demonstrated the critical role played by parental involvement in children's academic success. Reynolds (1992), on the other hand, reported that the relationship between measures of parental involvement and achievement were low to moderate.

Ginsburg & Bronstein (1993) studied three familial variables - parental surveillance of homework, parental reaction to grades, and general family style - in relation to motivational orientation and academic performance of 93 fifth graders. Results showed that higher parental surveillance of homework, parental reaction to grades that included negative control, uninvolvement, or extrinsic reward, and over- as well as under-controlling family styles were related to an extrinsic motivational orientation and to lower academic performance.
Paulson (1994) explored the influence of parenting style and parental involvement on achievement outcome of early adolescents. Two hundred and forty-seven, ninth graders and their parents participated in the study. The results indicated that adolescents' reports of both maternal and paternal demands, responsiveness, and parental involvement in achievement predicted significant proportions of the variance in achievement.

Toomey & Sloane (1994) reported the beneficial influence of a five year program for fostering children's early literacy development through parent involvement. They discussed that the project helped low income and working class parents in developing the literacy skills of their four-year-old children by, among other things, reading regularly with them.

Beyer (1995) proposed that children's academic achievement could be optimized by parental behaviours, including active involvement, support for autonomy, adequate monitoring, and encouragement.

Elliott & Hewison (1995) reported that “Success in reading was associated with a parental helping style that emphasized comprehension and interest”.

Fejgin (1995) examined the factors that contributed to the academic excellence of Jewish and Asian students in the United States. It was found that traditional socio-economic measures explained a portion of the advantage of these groups over other racial-ethnic groups and cancelled the advantage of Jewish students over Asian students. Parents' and students' attitudes and actions related to school work were found to mediate the effects of parents' education and income, and further explained the Jewish advantage in maths scores.
Hickman, Greenwood, & Miller (1995) investigated the relationship between achievement of high school students and the total amount and types of parent involvement in which the primary caregiving parent was engaged. Only the home-based type of involvement was found to be related to achievement.

Keith & Lichtman (1995) explored the influence of parental involvement on the academic achievement of 1,714 eighth-grade Mexican-American children. The most salient finding of the study was that parental involvement influenced overall academic achievement, as well as promoted gains in the specific subject areas of reading, maths, science, and social studies.

A review of all these researches indicates that parental involvement acts as a facilitator in children's achievement process. Support for the positive effects of parental involvement in children's schooling have been found across a wide range of populations and ages (Epstein, 1983; Fehrmann, Keith, & Reimers, 1987; Reynolds, 1989).

As explained in chapter II, the present investigation puts forth a multidimensional representation of parental involvement. Such a multidimensional approach to parental involvement including behaviour involvement, personal involvement, cognitive stimulation, and cognitive behaviour has not been much explored. However, direct or indirect evidence for the links of each of these dimensions of involvement with academic achievement is available in the past literature. An attempt has been made to explore the relationship of each these dimensions of parental involvement with academic achievement.

1) ACADEMIC ACHIEVEMENT IN RELATION TO PARENTAL BEHAVIOUR INVOLVEMENT

A close association between behaviour involvement by parents and their children's academic accomplishments has been demonstrated
by some researchers. Some of the studies in this area have been reviewed below.

Support for the significance of this dimension was provided in the research carried out by Anchor & Anchor (1974). Data from 227 scheduled parent-teacher conferences with parents of male students (either high or low success students) showed that parents of children with low academic success attended fewer conferences than parents of high-success children.

Iverson, Brownlee, & Walberg (1981) examined the effects of teacher-parent contacts on the reading achievement of 398 underachievers in a desegregated elementary school district. The hypothesis that an increased number of parent-teacher contacts would have a positive relationship with increased levels of achievement for most students was confirmed in the aggregate, although these contacts had differential effects on children of different age levels.

In another study by Epstein (1982), fifth-grade students were surveyed for their assessments and reactions to teacher practices of parent involvement and their parents' help at home. Students, whose teachers and parents used frequent parent involvement practices, reported more regular homework habits, more similarity between the school and their family, more familiarity between the teachers and their parents, and more homework on weekends.

Epstein & Becker (1982), after controlling for parent education, found that high school students, whose parents attended open school or college night, earned higher grades than those of parents who did not.

Stevenson & Baker (1987) found that children, of parents who were more involved in school activities, did better in school than children with parents who were less involved.
Evans et al. (1994) investigated home-school communication in the treatment of childhood behaviour problems. The results revealed that better communication between home and school was related to academic improvement.

Support for the significance of this dimension of behaviour involvement was also provided in the research carried out by Grolnick & Slowiaczek (1994). They found significant direct and indirect effects of maternal behaviour involvement on children's school performance through perceived competence and control understanding, and indirect effects of fathers' behaviour involvement on children's school performance through perceived competence.

All these researches thus, emphasize that parental behaviour involvement and the consequent home-school interaction assist children in performing well academically.

2) ACADEMIC ACHIEVEMENT IN RELATION TO PARENTAL PERSONAL INVOLVEMENT

Apart from behaviour involvement, parental personal involvement also contributes to the academic achievement of their children. Direct support for this relationship is provided by a few researchers. For instance, Fehrmann, Keith, & Reimers (1987) examined the effect of perceived parent involvement on grades, and concluded that the effect of parent involvement in students' academic and social lives should be considered as a means for improving academic progress.

Crouter et al. (1990) investigated the relationship between parental monitoring (i.e., parents' knowledge about children's daily experiences) and children's school performance and conduct. Results indicated that less well-monitored boys received lower grades than did other children.
Christenson, Rounds, & Gomey (1993) reviewed research findings pertaining to family influences on student achievement. They identified five family and home environmental variables that affected children's achievement, and whose influence could be altered through intervention. These factors were parent expectations and attributions, structure for learning, home affective environment, discipline, and parent involvement.

Grolnick & Slowiackz (1994) found that both maternal and paternal personal involvement in children's schooling showed a significant and positive correlation with children's grades, though the link between the two variables did not emerge as significant in path analysis.

Keith et al. (1994) explored the effects of parental involvement on the achievement of eighth-grade students. Data from 21,814 students and their parents participating in the National Education Longitudinal Study were included in the research study. The results revealed that parental involvement in students' academic lives had a pervasive impact on students' achievement. This effect was found to be true for all academic areas and appeared to result, in part, from the increased homework completed by students with more involved parents.

Some studies have been cited below that provide indirect support for the relationship of parents' personal involvement with children's achievement.

Research indicates a positive association between student achievement and emotionally supportive home situations. This finding is applicable to elementary school students (Hattwick & Stowell, 1936; Conklin, 1940; Leibman, 1953; Rickard, 1954; Walsh, 1956; Bradley et
al., 1987), high school students (Kimball, 1952, 1953), and college students (Jones, 1955).

Covington (1967) has found that children who are educationally successful tend to perceive parents as being more accepting than do those who are educationally unsuccessful.

Results arrived at by Nelson (1985) also support the fact that environments which provide structure, along with support and nurturance, invite affective and intellectual growth in children.

Jopt & Engelbert-Holtze (1986) describe a model of parental child-rearing practices that presupposes that parental evaluations of scholastic performance and supportive assistance are central dimensions of parent-child interactions regarding academic matters.

Studies by Sauer & Gattringer (1987), and Tamir (1990) demonstrate the associations between the home environments of children and their achievement.

Bolarin (1993) demonstrates that the amount of support subjects receive at home influences their academic achievement.

Cherian (1994) assessed the effect of parental interest on the academic achievement of 369 male and 652 female 13-17 year old students from polygynous or monogamous families in South Africa. The results indicated a positive relationship between parental interest and academic achievement of girls at a low socio-economic level and of boys and girls at middle and high socio-economic levels in monogamous families, and of boys and girls at low and middle socio-economic levels in polygynous families.

Thus, parental personal involvement plays a significant role in the child's education and affects the child's accomplishments in the long run. As there is a dearth of studies in this particular field, there is a need to
further explore this dimension of parental involvement and analyze how it contributes to the child's achievement process.

3) ACADEMIC ACHIEVEMENT IN RELATION TO PARENTAL COGNITIVE STIMULATION

As explained in chapter II, the present investigation plans to explore two aspects of cognitive involvement, viz., cognitive stimulation provided to children by parents, and secondly, cognitive behaviour of parents themselves. These concepts have already been explained in the previous chapter. In the present context, an attempt is made to analyze their relationship with the academic achievement of children. Firstly, cognitive stimulation and its affect on students' education shall be dealt with.

Exposure to intellectually stimulating activities and experiences plays a crucial role in the child's scholastic development. This kind of cognitive stimulation makes the child ready to effectively deal with intellectual tasks that are a part of schooling, and this preparedness eventually affects the child's subsequent academic performance.

Parental involvement in children's schooling has been emphasized to be an essential part of the educational enrichment of disadvantaged children, and is among the advocated practices for effective schooling (e.g., Brookover & Lezotte, 1972; Weibly, 1981; Stickney & Plunkett, 1982).

Kellaghan (1977), in a study on disadvantaged Irish eight and nine-year-old children, reported that the quality of language usage and the variety, frequency, and educational value of the activities of the family were associated with scholastic and cognitive ability.

In the research study conducted by Griswold (1986), family outings were compared across three racial groups, and were used to predict children's reading and math achievement. Among the results
reported were the facts that (i) visiting a public library was the best predictor of achievement regardless of race; (ii) a good predictor of Hispanics' achievement was going on a picnic; (iii) while for whites, it was visiting Disneyland.

Nihira, Mink, & Meyers (1986) examined the relation between home environment and the development of one hundred and forty-eight 7-14 year old slow-learners longitudinally over a three-year period. Analyses revealed significant influence of environmental stimulation, both cognitive and social, on the subjects' subsequent cognitive development and social adjustment.

Walberg & Tsai (1986) explored the correlates of reading achievement and attitude in a sample of 1,459 nine-year-old students. The home environment characteristics included variables such as television viewing, presence of newspapers, spare-time reading, dictionary use, kindergarten attendance, socio-economic status, ethnicity, school characteristics, and languages spoken in the home. The findings showed that the variances accounted for were moderate and highly significant. Correlations and partial correlations of achievement with home environment, quantity of instruction, and leisure-time television watching corroborated quantitative syntheses of productive factors in school learning.

In a study by Reynolds (1989), it was found that cognitive readiness of children on entering kindergarten had pervasive indirect effects on all first-grade outcomes.

Kellaghan, Sloane, Alvarez, & Bloom (1994) emphasized that "it is what parents do in the home, rather than socio-economic status or cultural background, that is critical to academic success". They offer guidelines so that "parents, educators, and policy planners can work
together to create stimulating home learning environments that complement and strengthen learning in school”.

Pani (1994) pointed out that the academic performance of tribal subjects was inferior to that of non-tribal subjects not due to inherent inferiority in cognitive ability, but because of lack of proper reading stimulation at home, developmental delay and production deficiency.

Bryant, Burchinal, Lau, & Sparling (1995) analyzed the relationships between classroom quality and child outcomes among 145 Head Start children (aged 3.6 to 5.9 years) from poor quality to more stimulating home environments. Results revealed that children from better home environments seemed to benefit more from classroom quality in the area of problem solving and reasoning than did those who came from less stimulating homes.

Okagaki, Frensch, & Gordan (1995) found that parents of high achievers, besides other things, modelled reading skills more frequently than did parents of low achievers.

Payne, Whitehurst, & Angell (1995) studied the relations between home literacy environment and child language ability for 323 children (aged 45 to 66 months) attending Head Start and their mothers or primary caregivers. The home literacy environment included overall frequency of shared picture book reading, age of onset of picture book reading, duration of shared picture book reading during one recent day, number of picture books in the home, frequency of the subject's requests to engage in shared picture book reading, frequency of subject's private play with books, frequency of shared trips to library, frequency of caregiver's private reading. Depending on the form of regression analyses employed and depending on whether primary caregiver's intelligence and education were entered into the prediction equation,
12% to 18.5% of the variance in children's language scores was explained by their home literacy environment.

All these researches endorse the importance of stimulation in children's educational outcomes.

4) ACADEMIC ACHIEVEMENT IN RELATION TO PARENTAL COGNITIVE BEHAVIOUR

Apart from parental cognitive stimulation, the cognitive behaviour of parents also plays a crucial role in children's scholastic progress. When parents themselves engage in various types of cognitive activities such as reading books, newspapers, magazines, and the like, it permits modeling to occur, and children tend to adopt similar attitudes and values towards intellectual activities as their parents have.

Keeves (1972) demonstrated the relationships between intellectual interests and activities in the home and children's achievement.

Results arrived at by Kurdek & Sinclair (1988) demonstrated that the extent to which the family engaged in intellectual activities at home explained a significant amount of variance in eighth graders' grades, beyond that accounted for by family structure, gender, and family conflict.

Grolnick & Slowiaczek (1994) found that both maternal and paternal cognitive behaviour showed a significant positive correlation with grades. They found indirect effects of parental cognitive/intellectual involvement on children's school performance through perceived competence.

Thus, empirical findings suggest the links between each of the dimensions of parental involvement explained above and children's academic accomplishments. "The evidence is clear that parental encouragement, activities, and interest at home and participation in
schools and classrooms affect children's achievements, attitudes, and aspirations, even after student ability and family socioeconomic status are taken into account” (Epstein, 1987, p. 120).

Although there is evidence to show the positive effects of parental school involvement on the child's learning outcomes, studies showing no significant relationship between such parental characteristics and child's achievement have also been reported, as listed below.

Grebow (1973) found that daughters' perceptions of parental antecedents of achievement attitudes and nurturance seemed to have no direct relationship to their actual performance, as measured by college grades.

Song & Hattie (1984) examined the relationship between home environment, self-concept and academic achievement in 2,297 14-15 year old Koreans. Results did not support the view that home environment exerted a direct influence on academic achievement.

Keith et al. (1986) investigated the direct and indirect influences of TV time, homework, and parental involvement on 28,051 high school seniors' achievement. Analyses revealed that parental involvement did not have any direct effect on children's achievement scores, but it positively influenced the amount of time that children spent on homework.

Chapman, Lambourne, & Silva (1990) found that family interest in cultural, political, and intellectual activities was not associated with either academic self-concept or reading achievement of children.

While these researches report that there does not exist any significant relationship between effective parenting variables and children's achievement outcomes, studies revealing a negative relationship between the above-mentioned variables are also available.
Bradley et al. (1987), in a study on black school children (aged 8 to 10 years), found that paternal involvement showed a negative correlation with achievement.

Gorges & Elliott (1995) explored the effect of student homework time and parental time and involvement in helping activities on the academic performance of children in third and fifth grades. Analyses revealed that students characterized as below-average performers were apt to spend more time and to receive greater parental help than did above average performers.

Such findings suggest that parents, whose children are not doing so well in school, become more involved with them, perhaps as a response to children's behaviour. An alternative explanation may be that excessive involvement may be experienced as intrusive by children (Grolnick & Ryan, 1987a), thereby leading to less achievement on the part of children whose parents show more involvement.

An analysis of all these researches reveals that although most of the studies have reported a positive relationship to exist between parental involvement and children's performance, some researches have provided support for no relationship or negative relationship between these two factors, thereby making the whole issue more intricate and complex. There is, therefore, a need to further explore the nature of relationship between these two variables and analyze how the various dimensions of involvement by mothers and fathers may contribute to the child's scholastic accomplishments.

ACADEMIC ACHIEVEMENT IN RELATION TO MOTIVATION

Motivation occupies a central position in learning. It is often observed that a child who is not motivated to learn, does not learn
effectively no matter how much pressure one might exert on him/her. As a result, such a child tends to perform poorly in studies. On the other hand, if the child is motivated to acquire knowledge, he/she tends to put in his/her best efforts, even in face of the most adverse circumstances. Such a child leaves no stone unturned for gaining education and consequently, tends to excel in studies. Academic achievement thus, is directly influenced by motivational traits and dispositions of the individual.

A number of studies conducted in the past have explored the relationship between motivation and academic achievement. These researches show that use of adequate motivational strategies can assist in the academic growth of the child.

In a study by Dupree (1932), a number of positive stimulants to good scholarship were tested on a freshman class. These reinforcers included an encouraging letter, an interview with the Junior Dean, reading lists, a letter of recommendation to the parents of all those students who showed outstanding performance during the first quarter, an honor roll, and a scholarship dinner. The results revealed an "unusually high" grade-point average for all these students (The study included no control group).

Eurich (1932) demonstrated that when students were placed on probation for poor work, they tended to perform better during probation than what they used to earlier.

Fay (1933), in a study on 196 students in a course of psychology, divided the students into two groups, equated for intelligence and psychology achievement scores. Students in the experimental group were given monthly grades in terms of letters and deciles, while students in the control group were simply informed whether their performance
was satisfactory, unsatisfactory, or failing. Results indicated that in the experimental group, both "A" students and those with low intelligence performed reliably better throughout the semester.

Lehman (1935), in a ten-semester study, found that after the fraternity initiation academic requirements had been fulfilled, there was a tendency for average grades to drop.

The studies mentioned above show that the role of motivation in learning and achievement had been recognized since long. Many recent researches have also attempted to examine this relationship.

Pelechano (1973) conducted tests of personality, motivation, and intelligence on 82 female students (their mean age being approximately 16 years). Analyses revealed that the variables of intelligence and personality did not show a systematic relationship with academic performance, whereas some motivational factors did.

Gordon (1981), on 129 sixth-grade students (aged 11-15 years) who were selected at random from 17 primary schools in Belize, Central America, found that motivation showed a significant correlation with achievement in written English.

Tamir (1990), in a study on 2,277 twelfth-grade students in 68 Israeli schools, found that interest and motivation showed a strong relationship with achievement.

Researchers have also examined some specific aspects of motivation as they relate to the individual's academic performance. A number of motivational variables have been identified (as pointed out in chapter II), and one such variable is achievement motivation. Evidence exists to support its links with scholastic accomplishment. Several investigators have found positive correlations between measures of academic achievement and achievement motivation (e.g., Harris, 1940;
McClelland, Atkinson, Clark, & Lowell, 1953; Ricciuti & Sadacca, 1955; Atkinson & Litwin, 1960; McClelland, 1961; Cox, 1962; Lott & Lott, 1963; Atkinson, 1964; Atkinson & Feather, 1966; Khan, 1969; Boor, 1973; Malik, 1977; Reddy, 1985; Tepper & Powers, 1985; Ali, 1988; Neumann, Finaly, & Reichel, 1989), while others (e.g., Schneider & Bös, 1987) have reported indirect influence of achievement motivation on school achievement. Still others have found no significant effect of this variable on academic performance (e.g., Parrish & Rethlingshafer, 1954; Feld, 1960; M.C. Shaw, 1961; Fedell, 1971; Ray, De Ray, & Mukerjee, 1994). Some researchers, on the other hand, have demonstrated inverse relationships between need for achievement and scholastic accomplishments (e.g., Lazarus, Baker, Broverman, & Mayer, 1957; Broverman, Jordan, & Phillips, 1960; Cole, Jacobs, Zubok, Fagot, & Hunter, 1962). Morgan (1952) has found correlations ranging from .46 to -.21 after partialling out the effects of intelligence.

To sum up, it may be said that research findings in this area have been equivocal, since correlations ranging from .51 (McClelland, Atkinson, Clark, & Lowell, 1953) to -.21 have been reported between the two variables. In the words of Atkinson & Raynor (1974, pp. 200-201), the status of this relationship may be summarized as a "now you see it, now you don't" phenomenon.

Apart from achievement motivation, another aspect of motivation which has been widely explored is intrinsic versus extrinsic motivation. These concepts have already been explained in chapter II. In the present context, its links with academic achievement have been analyzed.

A vast amount of research has been focused on exploring the undesirable influences of making a person work on a task by use of extrinsic incentives (Lepper & Greene, 1978; Deci & Ryan, 1980,
1985a). It has been found that doing a task for extrinsic causes (e.g., rewards, grades, surveillance, or using statements such as one "should") reduces later interest in performing that activity, leads to decreased interest in mastery strivings, and often impairs subsequent performance, particularly if the activity is concerned with a heuristic solution (Lepper & Greene, 1975; McGraw & McCullers, 1979; Lepper, Sagotsky, Dafoe, & Greene, 1981; Boggiano, Pittman, & Ruble, 1982; Pittman, Emery, & Boggiano, 1982; Ryan, Chandler, Connell, & Deci, 1983). On the other hand, learning and behaviour change are most effective when they are intrinsically motivated (Ryan & Deci, 1980). Whitehead (1985) has demonstrated that there is a significant (although small) tendency for high achievers to have high scores on the dimension of intrinsic motivation. Results arrived at by Schultz & Switzky (1993) reveal that intrinsically motivated subjects have more reading comprehension than do the extrinsically motivated ones. On the basis of empirical experiments and researches, Deci & Ryan (1994) have concluded that "intrinsic motivation and self-determined extrinsic motivation are positively associated with high quality learning and personal adjustment."

It is evident from the above discussion that there is a link between academic achievement and motivational qualities of children. In the present investigation, the main interest is in three motivational resources in particular, viz., control understanding, perceived competence, and self-regulation. There is therefore, a need to examine the association of each of these variables with scholastic accomplishments separately. Moreover, as Bardwell & Braaksma (1986) have indicated, instruments measuring motivation explain a greater portion of the variance in school success when examined separately than when the instruments are used in
combination. Results arrived by them revealed that when the instruments were used in combination, they explained 23% of the variance in school achievement, but when they were divided into their component parts, they explained 36% of the variance. So, the analysis of each of these motivational resources with academic achievement seems to be more appropriate and reasonable.

1) ACADEMIC ACHIEVEMENT IN RELATION TO CONTROL UNDERSTANDING

As pointed out in the previous chapter, the concept of control understanding has emerged from studies on perceived control. Perceptions, or even illusions of control over the environment have been considered to affect many aspects of behaviour, including learning (Lefcourt, 1973; Perlmutter & Monty, 1977). Researches on perception of control have specifically paid attention to concepts such as internal versus external control, and attributions for success/failure outcomes. The links of such variables with academic achievement have been suggested by a number of psychologists. For instance, in the words of Margol (1980), "A proposed prerequisite for the presence of intrinsic motivation in academic achievement situations is a feeling on the part of the child that he is in control or feels responsible for his successes and/or failures. A child who fulfils this prerequisite will display greater persistence in achievement situations. On the other hand, a child who feels that the outcome of his performance is left to fate, luck, or someone other than himself, will avoid, or more or less become passively involved in situations of academic achievement". Empirical evidence is also present to support these relations between perceived control variables and academic performance. For example, Crandall et al. (1962) found that male subjects who attributed achievement responsibility to themselves, spent more time in intellectual free-play activities (r=.70,
p<.05, N=20), demonstrated greater intensity of striving in intellectual free-play pursuits (r=.66, p<.05), scored higher on Stanford-Binet intelligence test (r=.52, p<.05), on reading achievement tests (r=.51, p<.05) and arithmetic achievement tests (r=.38, p<.10).

Several researchers (e.g., Arlin, 1975; Epstein & McPartland, 1976; Wolf, 1979) reported that children assuming more personal responsibility for achievement-related successes and failures, expressed more positive feelings toward school and learning.

Marsh (1985) evaluated multiple dimensions of (a) self-attribution for causes of academic outcomes, (b) self-concept, (c) inferred self-concept (by teachers and peers), and achievement in reading and mathematics. The sample consisted of 559 Australian fifth graders. Analyses revealed that children who attributed failure to lack of ability or lack of effort had better academic self-concepts (based on self-, teacher- and peer-reports) and better academic achievement (based on test scores and teacher ratings).

Boss & Taylor (1990) conducted a study on 267 high school students from advanced general and basic level academic programs. Modified version of the Nowicki-Strickland Locus of Control scale and the Intellectual Achievement Responsibility questionnaire were administered to the subjects. Results showed that children in the advanced level program were more internally controlled than those in general or basic level programs. In addition to this, advanced level subjects were found to be more internally responsible for their intellectual-academic failures than general level children.

Other studies too, demonstrate the links between locus of control and academic achievement (e.g., Nowicki & Strickland, 1973; Findley &

All these researches indicate that variables pertaining to perceived control, such as internal-external control and responsibility for successes/failures in achievement, are significantly related to academic performance. However, control understanding, the specific aspect of perceived control of interest to the present investigator, has not been so vastly explored. Its role in scholastic accomplishments is evident from a few studies such as that of Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, & York (1966) on almost half a million youngsters across the United States. They found that a belief in destiny was a major determinant in school achievement, and that this pupil attitude variable had a stronger relationship with achievement than all other school variables taken together. So, 'known' and 'unknown' perceptions of control play a significant role in learning.


Dweck & Elliott (1983) too, emphasized that an understanding of the basic principles for achieving success and avoiding failure was imperative for achievement-related behaviours and cognitions.

Connell (1985), in case of three elementary samples, reported that the most consistent predictors of standardized achievement scores were unknown control, internal control, and relative internality for success outcomes (each variable showing four out of six possible correlations to be significant \(p<.05\)).

Skinner, Wellborn, & Connell (1990) arrived at similar results. Their research indicated that children who displayed control
understanding were more engaged in school activities (inferred from teacher ratings), and showed higher achievement scores and grades as compared to those children who reported that they did not know what determined school outcomes.

Grolnick, Ryan, & Deci (1991) conducted a study on children in third through sixth grades. Their sample was heterogeneous as far as the socioeconomic status of children was concerned. Results revealed that control understanding correlated significantly with grades (p<.001), achievement scores (p<.001) and teacher-rated competence (p<.01).

Findings by Grolnick & Slowiaczek (1994) demonstrated that (for children from sixth through eighth grades), control understanding correlated significantly with grades (p<.001) and teacher competence ratings (p<.001). Path analysis too, demonstrated that control understanding was significantly linked with school grades.

From the studies mentioned above, it is evident that control understanding is a crucial predictor of academic success. This motivational resource is of immense significance in children's learning because, if children do not understand who or what is responsible for their important school outcomes, they will have no grounds to pursue or change their behaviour patterns to attain academic goals. In other words, if they do not understand this behaviour-outcome linkage, they will have little reason to produce consistent, favourable behaviour patterns which will lead to desirable academic results, and will have hardly any grounds to give up inadequate behaviours that could lead to deterioration in level of academic performance. Hence, control understanding is of central importance in accomplishing scholastic targets and goals.
Children's notions about themselves are of central importance in determining their academic outcomes. When children perceive themselves as capable enough of learning efficiently, it tends to affect their general approach towards academic tasks and targets. Their perceptions of self-efficacy, self-worth, and self-esteem provide them with a source of motivation, and as a result, they tend to fare well in whatever task they undertake. On the other hand, when children view themselves as "good-for-nothing" individuals who are ineffective, inefficient, and unproductive, their feelings of adequacy, competence, dignity and self-respect tend to be lowered, and this consequently dampens their strivings for mastery.

Innumerable researchers have indicated significant and positive correlations between measures of self-concept and achievement (e.g., Coopersmith, 1959, 1967; Fink, 1962; Payne & Farquhar, 1962; Lamy, 1965; Bledsoe, 1967; Williams & Cole, 1968; Caplan, 1969; Epps, 1969; Piers, 1969; Binder et al., 1970; Rosenberg & Simmons, 1973; Black, 1974; Kohr, 1974; Katzenmeyer & Stenner, 1975; Funaki, 1976; Mintz & Muller, 1977; Kershner, 1990). There is a general consensus that under-achievers have relatively inadequate self-concepts than do normal achievers (M. Shaw, 1961; Passow & Goldberg, 1962; Shaw & Alves, 1963; Woolf, 1965; Strang, 1968; Gustafson, 1995), and high achievers exhibit better self-concepts than do low achievers (Pal, Jain, & Tiwari, 1987).

Evidence also exists regarding the association between self-concept and academic achievement, even after controlling for intelligence (e.g., Brookover, Thomas, & Patterson, 1964).
On the other hand, several theorists have failed to find any significant relationship between academic achievement and self-concept (e.g., Wattenberg & Clifford, 1964; Lewis, 1972; Williams, 1973; Ketcham & Snyder, 1977).

To further complicate this issue, investigations specifically designed to analyze causal relationships between these two variables have demonstrated that general self-concept may not be causally related to achievement (Caslyn, 1974; Maruyama, Rubin, & Kingsbury, 1981; Pottebaum, Keith, & Ehly, 1986).

Such research endeavours have indicated that general self-concept may not be related to achievement since the construct being measured is a "general" or global one. There is therefore, a need to study "specific" attributes of the "self" and "self-related" variables in relation to achievement.

Several investigations have revealed significant associations between such self-perceptions of academic ability and achievement by taking into account variables such as academic self-concept, or self-efficacy, and the like. For instance, Brookover et al. (1964) reported the coefficient of correlation between grade-point average and self-concept of ability to be .57 for seventh-grade boys as well as girls. Hansford & Hattie (1982) found that the correlations between these two variables was .42.

Marsh, Smith, Barnes, & Butler (1983) supported the notion that academic ability showed a strong correlation with subject-specific self-concept, was less strongly related with other academic self-concepts, and showed the least correlation with non-academic self-concept.

Chapman, Silva, & Williams (1985) explored the relations between academic self-concept, intelligence and school performance of
415 male and 385 female nine-year-old children. They found that students' perceptions of ability were related to success in school, but were relatively independent of intelligence. The authors also reported that students showing retardation in reading had significantly lower self-perceptions of ability as compared to the normal readers.

Song & Hattie (1985, p. 365) too, proposed that the "relations between achievement and the facets of academic self-concept are greater than the relations between achievement and presentation of self and social self-concept".

Mboya (1987), in a study on 211 tenth-grade black children, found that the relationship between self-concept of academic ability and academic achievement was stronger than that of the latter with global self-concept.

Gresham, Evans, & Elliott (1989), among 336 students from third through fifth-grades, demonstrated that self-reported judgements of academic self-efficacy best predicted academic achievement, while self-reported social self-efficacy best predicted sociometric status. Results revealed that teacher- and parent-reported self-efficacy ratings were minimal predictors of achievement and sociometric status, thereby highlighting the importance of obtaining children's self-reports of ability.

Bandura (1993) reported that students' level of motivation and scholastic achievements were determined by their perceived self-efficacy to regulate their learning and to master academic activities.

Maqsud (1993) investigated the relations between certain personality variables and academic achievement of secondary school students. Findings showed that academic self-concept and internality were positively related to scholastic accomplishments, while
extraversion, neuroticism, and psychoticism were negatively related to it.

Sink, Barnett, & Pool (1993) found that children's academic self-concept showed a positive correlation with their achievement in sixth and seventh grades.

Mboya (1994) examined the relations of self-concept of academic ability with child's gender and academic achievement for 440 tenth graders (307 boys and 133 girls). Analyses revealed that there was a significant and positive relationship between self-concept of academic ability and scholastic achievement for both boys and girls, but the magnitude of correlation was stronger in case of girls as compared to boys.

Schicke & Fagan (1994) investigated the contributions of self-concept and intelligence in predicting academic achievement for a sample of 121 fourth-, sixth-, and eighth-grade children. They found a small but significant correlation between academic self-concept and achievement. Findings from regression analysis indicated that intelligence was the strongest predictor of academic achievement, and that academic self-concept explained a small amount of the variance in the criterion variable beyond that explained by intelligence.

While the studies mentioned above have examined relations of achievement with various self-related variables, the relations of achievement with "competence" in particular have also been explored. The emerging literature indicates that children's perceptions regarding competence is related to their academic functioning. Theorists (e.g., Dweck, 1975; Weisz, 1979, 1981) have shown how misperceptions/faulty conclusions regarding incompetence are related to under-achievement.
Baarstad (1978) found support for the fact that learning-disabled children rated their competence as lower than did the normal children, and that this difference was the most pronounced in the cognitive domain. This study showed the links of self-perceptions of competence with learning.

Perceptions of incompetence were found to be associated with impaired problem solving (Dweck & Goetz, 1978; Elliott & Dweck, 1981) and lower levels of self-initiative in school settings (Beigel, 1982).

Weisz (1983) indicated that the level, as well as accuracy of an individual's judgements about his/her competence, were crucial in explaining learning and adjustment outcomes.

Theorists have demonstrated the importance of perceptions of competence in achievement in arithmetic (Horn & Packard, 1985; Tramontana, Hooper, & Selzer, 1988) and reading comprehension (Ehrlich, Kurtz-Costes, & Loridant, 1995).

A few studies examining the relations of academic/cognitive competence with academic achievement in particular, have been cited below.

Harter & Pike (1984) found that children's perceptions of their cognitive competence had significant correlation with teacher's ratings of children's achievement.

Analyses by Stigler, Smith, & Mao (1986) revealed that, in case of both Chinese and American elementary school children, perceived cognitive competence showed a high correlation with actual school achievement.

Grolnick, Ryan, & Deci (1991) reported a significant, positive correlation of perceived scholastic competence with grades (r=.32, p<.001), achievement (r=.35, p<.001) and teacher ratings of children's
academic competence ($r = .39$, $p < .001$) in case of 456 children from third to sixth grades.

Study by Lamborn, Mounts, Steinberg, & Dornbusch (1991) on adolescents (14 to 18-year-olds) indicated that perceived academic competence was significantly and positively related to grade-point average and school orientation.

Grolnick & Slowiaczek (1994) reported that perceived academic competence showed a positive correlation with grades ($r = .62$, $p < .001$) and teacher ratings of competence ($r = .63$, $p < .001$). Path analysis revealed that perceived academic competence was a significant predictor of school grades.

Ehrlich, Kurtz-Costes, & Loridant (1995) conducted a study on the cognitive and motivational determinants of reading comprehension abilities of 64 good readers and 63 poor readers identified from a group of 220 fifth-level (seventh grade) children in Paris. The investigators found that good readers had higher scores on word recognition, more positive opinions about their academic capabilities and were richer in metacognitive knowledge. Analyses for the total sample indicated that word recognition and metacognition were the best predictors of reading comprehension. Analyses within sub-groups indicated that the most important predictor for reading ability of good readers was perceived competence, while in the case of poor readers, it was word recognition.

All the studies mentioned above clearly indicate that there is a very close relationship between children's perceived competence and their scholastic performance. However, this relationship is not so simple and straightforward. It has been argued that the association between these two variables is not one-way, i.e., it is not simply that a person's beliefs about himself/herself may affect his/her learning outcomes, but in
turn, prior achievements can also influence the post-perceptions about one's ability.

Self-perceptions, thus, can serve as both antecedent and consequence of achievement-related behaviours (Brookover, Thomas, & Patterson, 1964; Purkey, 1970; Nicholls, 1979; Midkiff, Burke, Hunt, & Ellison, 1986; Hamachek, 1995; Hoge, Smit, & Crist, 1995), and such a bi-directional relationship has been highlighted by studies based on causal modeling analyses too (e.g., Kurtz-Costes & Schneider, 1994).

All such investigations demonstrating the presence of a two-way interaction between self-perceptions and school achievement emphasize the need to further explore this issue.

3) ACADEMIC ACHIEVEMENT IN RELATION TO SELF-REGULATION

One of the major goals of education is inculcating a sense of autonomy in children with respect to learning and behaviour. Children must feel autonomous or choiceful as far as their achievement-oriented activities are concerned, i.e., they must not feel forced or coerced into performing such activities, but should rather initiate and regulate such actions in order to achieve desirable goals.

This sense of self-regulation is very essential in predicting learning outcomes. The more the individual is autonomous in his/her learning, the more it would depict how strongly he/she feels for achievement outcomes. On the other hand, the more "controlled" the individual is as far as learning targets and goals are concerned, the less motivated he/she would be in performing them; and lesser the motivation, lesser would be the chances for successful performance of those academic tasks. It is in this way that self-regulation and learning are inter-linked, with the former providing the motivating or driving
force for the latter. Such a viewpoint has been adopted by several theorists who agree that learning would take place most effectively when the learner is internally motivated to acquire knowledge (deCharms, 1976; Thomas, 1980).

Different methods for motivating an individual into learning exist, which reflect the degree to which the individual's internally motivated or choiceful behaviour is aroused (Deci & Ryan, 1985a; Ryan, Connell, & Deci; 1985). Some of these methods make use of incentives, tangibles, rewards, punishments, and other forms of external controls, whereas other methods encourage self-determination in learning. Each of these methods may have a differential effect on the achievement process, depending on the degree to which they evoke autonomy. So, whether or not learning is autonomous may have a significant bearing on academic accomplishments. Recognizing the significant role played by these perceptions of locus of causality in learning, numerous theorists have emphasized the centrality of such internalization models in the process of education (Krathwohl, Bloom, & Masia, 1974; Connell & Ryan, 1984; Ryan et al., 1985). Variations in autonomy (Ryan & Grolnick, 1986) and self-regulation (Ryan, Connell, & Deci, 1985) have been linked with adjustment and intrinsic motivation which would, in turn, affect achievement outcomes.

Efforts have been made to explore the relations between autonomous versus controlled orientation and the individual's approach towards learning. Some theorists (Ryan, 1982; Ryan, Mims, & Koestner, 1983) propose that greater pressure and tension are associated with contexts emphasizing "control" rather than autonomy. Koestner & Zuckerman (1994) reveal that autonomous students are likely to adopt "learning" goals, while controlled students are liable to adopt
"performance" goals. When information is acquired in an autonomy-supporting context, there are more chances that it may be processed appropriately, and may be accompanied by greater interest and personal relevance. There is, therefore, a greater probability for it to be maintained (Greenwald, 1981) and consequently, the individual will tend to recall and produce such material with greater accuracy and efficiency in future test situations. This has also been reported by Grolnick & Ryan (1987a), who found that children's relative autonomy was related to their memory for grade-level text material.

Apart from the differences mentioned above, autonomous individuals have been found to respond to failure in a mastery-oriented manner, while those who are impersonally oriented respond to it in a helpless fashion (Koestner & Zuckerman, 1994). So, perceptions of locus of causality moderate the influence of failure feedback on motivation, and consequently tend to influence achievement outcomes.

Some studies have attempted to examine the relations between academic achievement and autonomy versus controlling contexts. For instance, McGraw (1978) showed that introducing extrinsic rewards in a learning situation could lead to deterioration in performance. It was proposed that external constraints interfered with outcomes that were heuristic in nature. Deci & Ryan (1985b) too, reported a negative correlation between control orientation and test performance.

Similar findings revealing the deterioration in learning due to controlling external events were reported by other theorists (Benware & Deci, 1984; Grolnick & Ryan, 1987a). Such investigations demonstrated that under controlling conditions (either the context or the individual's own orientation could be controlling), children's learning was impaired, especially when conceptual material was involved.
Analyses by Deci & Ryan (1985b) revealed that control orientation and grades were significantly negatively related to each other. This implied that the more control oriented the individual was, the lower would be his/her performance.

Grolnick & Ryan (1987a) conducted a study on 91, fifth-grade children. Their investigation involved three conditions - a nondirected, spontaneous-learning condition and two directed learning conditions (one controlling and one noncontrolling). The researchers found that across the conditions, scores on RAI (which describes the degree of autonomy children exhibit) were associated with conceptual learning.

Pintrich & deGroot (1990) analyzed the relationship between motivational orientation, self-regulated learning, and classroom academic performance. Their sample consisted of 173 seventh-grade children. The results indicated that depending on the outcome measure, the variables which predicted performance most successfully were self-regulation, self-efficacy, and test anxiety.

Grolnick, Ryan, & Deci (1991) investigated the relationship between children's perception of their parents (on autonomy support and involvement), their motivational resources (viz., control understanding, perceived competence, and perceived autonomy), and school performance. Four hundred and fifty-six children studying in third- to sixth-grade were included in the study. The authors found that scores on relative autonomy index were significantly and positively related with grades (r=.16, p<.001), achievement (r=.15, p<.001), and teacher ratings of children's academic competence (r=.21, p<.001).

Deci & Ryan (1993) proposed that children's learning and achievement were intrinsically motivated, and were influenced by their experiences of competence and autonomy.
Vallerand & Bissonnette (1993) examined intrinsic, extrinsic (external regulation, introjection, identification, and integration), and amotivational styles as predictors of behaviour of 388 male and 674 female college students. At the beginning of the academic year, the subjects completed a scale measuring the above-mentioned motivational styles. When the semester ended, students who persisted with the course and those who had dropped out were identified. When these two groups of adolescents were compared on their motivational styles, it was found that as compared to the drop-outs, the students who had continued with the course had reported at the beginning of the year as being more intrinsically motivated, more identified and integrated, and less amotivated towards academic activities.

Wentzel (1993) examined causal belief systems of children studying in sixth and seventh grades. The students were asked to make a choice out of three reasons presented to them as to why they attempted to earn good grades in school. The investigator found that causal belief systems showed a significant relationship with classroom grades and standardized achievement test scores over time. Results further indicated that students, who attempted to earn good grades because learning was fun and exciting (mastery-oriented beliefs), achieved the highest grades.

Grolnick & Slowiaczek (1994), in a study on 300, sixth to eighth graders (11-14 year olds), found that self-regulation showed a significant and positive correlation with grades ($r=.34$, $p<.001$) as well as with teacher ratings of children's competence ($r=.26$, $p<.001$). However, path analysis did not reveal a significant link between self-regulation and grades.

Schultz (1994) investigated the relations of socioeconomic advantage and achievement motivation with academic achievement of
130 minority children studying in fourth to sixth grades. In order to evaluate the level of achievement motivation of children, a self-report measure of subjects' self-efficacy, intrinsic value, and self-regulatory learning orientation was utilized. Results indicated that socioeconomic advantage and achievement motivation were crucial mediators of scholastic achievement, independent of intellectual ability.

Theorists are currently placing a lot of emphasis on the role of self-regulation in explaining academic performance (Corno, 1994) and its more specific outcomes such as writing (Graham & Harris, 1994). In fact, the recent upsurge in education is to make learning more self-regulated and self-determined so that students can assume responsibility for their academic outcomes.

To sum up on motivation and academic achievement, it may be said that the past research indicates the links of each of the three motivational resources (viz., control understanding, perceived competence, and self-regulation) with academic accomplishments. The present investigator too, expects that each of these three motivational variables would show a significant and positive relationship with scholastic performance (for elementary as well as secondary subjects, and for boys as well as girls).

Apart from examining the links of each of the independent variables (viz., intelligence and parental involvement variables) and mediator (motivational) variables with the dependent variable (i.e., academic achievement), links of the independent variables with the mediator variables could also be intriguing and thought-provoking. The present investigator proposes to examine the relations of children's motivational resources with their intelligence and parental involvement. A review of literature pertaining to these two relationships is also
necessary in order to facilitate our understanding of the way in which these variables mutually interact with each other. Research pertaining to these associations, viz., intelligence and motivation, and parental involvement and children's motivation is presented in the following pages.

MOTIVATION IN RELATION TO INTELLIGENCE

Different studies have tried to analyze the connection between the individual's intellectual endowment and his motivational dispositions, and have reported a positive relationship between these two variables. Following is the review of such studies.

The results arrived at by Kagan, Sontag, Baker, & Nelson (1958) indicated that high need achievement, competitive strivings, and curiosity about nature were related to gains in intelligence score.

Kagan & Freeman (1963, p. 899) stated, "A child's score on the Stanford-Binet Intelligence Test, especially when it falls within the range of 85 to 130, is... a moderately good predictor of degree of future involvement in intellectual mastery.... Since the score is the result of a representative sampling of the culture's definition of mental skills, we might expect it to be moderately predictive of degree of future mastery of intellectual tasks." In their study, they found that for boys, the only consistent correlate of high IQ in childhood was involvement in intellectual mastery during adolescence. For girls, however, IQ predicted several adolescent variables including concern with intellectual competence.

Radin (1971) found that motivation to achieve, assessed by the examiner's ratings of the 13 items on the Stanford-Binet face sheet, was positively related to maternal nurturance and the child's cognitive performance.
Epstein & Radin (1975) found evidence for inter-personal and task motivation to be related to observed paternal behaviour and cognitive functioning in 4-year-old white children.

Malik (1977), on the basis of his study on 230 tenth-class students, concluded that intelligence was related to n-Achievement and n-Aggression, though very slightly.

Dočkal (1987) hypothesized about the dialectic causal relationship between abilities and motivation during childhood development. Support for the hypothesis was verified by studying the development of artistic expressive ability and nonspecific motivational development in sixty-one, 13-year-old students (43 girls and 18 boys) from public art schools. It was found that the more highly motivated subjects showed a more rapid increase in abilities; while the cleverer subjects demonstrated a more rapid increase in motivation. Most of the less clever subjects lost their motivation after spending one year in the public art schools.

Carr & Kurtz-Costes (1995) examined which characteristics of children were most influential in shaping their teachers' perceptions of their students. Teachers completed questionnaires estimating each child's metacognitive abilities, academic self-concept, and attributional beliefs about the reasons underlying academic success and failure. Analyses indicated that teachers' perceptions were biased by children's ability, as children with higher ability were portrayed more favourably on all the variables.

All the studies quoted above show the relationship between the individual's mental abilities and his motivational tendencies. A vast number of motivational qualities have been emphasized. However, the investigator was interested in three motivational resources, viz., control
understanding, perceived competence, and self-regulation. For these three measures, children's perceptions of their own behaviour were taken into account. This was because of the growing recognition that a child's perception was the more powerful predictor of achievement motivation and behaviour (Bandura, 1977b; Weiner, 1979; Nicholls, 1982; Covington, 1984). Smits (1987) also reported that students' self-perceptions of ability seemed to be linked to achievement orientation.

Various studies have reported connections between children's perceptions of their self-system and their mental abilities.

Pellegrini, Masten, Garmezy, & Ferrarese (1988) investigated the correlates of social and academic competence in one hundred, 9-14 year old children. While social comprehension was found to be the best predictor of social competence, intelligence turned out to be the most powerful predictor of academic competence.

Callahan, Cornell, & Loyd (1990) examined perceived competence and quality of parent-adolescent communication in sixty (13-17 year old) high-ability adolescent females. Amongst the tests administered to the subjects were the Wechsler Intelligence Scale for Children-Revised (WISC-R) and the Self-Perception Profile for Adolescents. It was found that these high-ability subjects displayed above-average academic and overall perceived competence, although intelligence showed a negative correlation with perceived competence in the nonacademic areas.

Vallerand, Gagné, Senécal, & Pelletier (1995), in a recent study, compared school intrinsic motivation and perceived competence of 69 gifted and 66 regular elementary school students (their average age being 10.1 years). There were 64 boys and 71 girls in the sample. They completed French/Canadian versions of the Intrinsic/Extrinsic
Orientation Scale (Harter, 1981b) and the Cognitive Perceived Competence Scale (Harter, 1982). The results indicated that gifted students perceived themselves as being more competent and intrinsically motivated towards school activities as compared to the regular students.

So, there are a few studies showing the relationship between intelligence and motivational qualities, especially perceived competence. The links of the other two motivational resources which are also of interest to the investigator (viz., control understanding and self-regulation) with intelligence have not been much explored. Indirect evidence in support of their relationship with intelligence is provided below.

The variable of control understanding has developed from Rotter's concept of internal-external locus of control, as described in chapter II. Although the two variables are somewhat different, an analysis into the relationship of intelligence with internal-external control scores could enlighten us, to a certain extent, of its relationship with control understanding.

Gold (1968) used a mixed sex university sample of 283 first year students to examine the relationships among internal-external or I-E scores and other variables. The results revealed that the relationship between intelligence and I-E scores was low but significant and in the same direction as the insignificant relationships previously reported by Rotter (1966).

Davis & Connell (1986) examined the independent and joint effects of aptitudes and achievement on assessments of the self-system in 53 gifted and 72 average fourth- to sixth-grade children. Subjects were administered several tests including four self-report measures assessing perceived competence, intrinsic versus extrinsic orientation in
the classroom, perceptions of control, and school-related anxiety. The results revealed that the gifted group was significantly higher than the average group on self-evaluations of competence, feelings of mastery, and preference for independent decision making. The average subjects reported a lower level of understanding than the gifted subjects about the reasons for success and failure outcomes.

Risemberg & Zimmerman (1993) have stated, "gifted students (GSs) spontaneously utilize self-regulatory learning strategies most frequently than do non-GSs. When trained to use strategies, GSs also use them more effectively and can transfer these strategies to novel tasks. Self-regulation measures may be a useful adjunct in diagnosing giftedness, and self-regulation training may further enhance GSs' academic achievement".

The evidence supplied so far supports the view that more intelligent individuals display more effective motivational qualities. However, this is not the case always. For, highly competent children too, have been found to display ineffective patterns of achievement striving and behaviour. In fact, some of the most proficient students appear to be among those who are most vulnerable to performance debilitation and self-denigration (Crandall, 1969; Dweck, Goetz, & Strauss, 1980; Stipek & Hoffman, 1980; Licht & Dweck, 1982).

Cattell (1973) too, argued for the conceptual independence of the ability, personality, and motivation domains, and suggested that each contributes 25% to predicting achievement.

Radin (1974) reported that for four-year-old lower-class boys, association between motivation to achieve and intelligence was absent.

Chapman, Silva, & Williams (1985) examined the correlates of academic self-concept in 415 male and 385 female nine-year-old
children. Several tests were administered to the subjects, including a short form of the Student's Perception of Ability Scale (SPAS) and Wechsler Intelligence Scale for Children-Revised (WISC-R). SPAS scores were found to correlate weakly or negligibly with WISC-R scores. On the basis of the study, it was concluded that perceptions of ability appeared to be relatively independent of intelligence.

Grolnick & Ryan (1987a) reported that there was no significant relationship between relative autonomy index and verbal ability.

In light of the contradictory findings reported in this field, nothing concrete can be said as far as the relationships of intelligence with control understanding, perceived competence, and self-regulation are concerned, since these have apparently not been much subjected to analysis. Hence, there is a necessity to explore the same.

Apart from examining the relations between intelligence and motivational resources, the links between parental involvement and children's motivational resources are also of interest to the present investigator. Hence, the review of literature pertaining to these links is presented in the following pages.

CHILDREN'S MOTIVATION IN RELATION TO PARENTAL INVOLVEMENT

Parent-child interaction and other early experiences are assumed to play a very important role in the development of motivational dispositions of the child. The association between these two sets of variables have been highlighted by several psychologists. For instance, Kagan & Freeman (1963) reported that both maternal justification and acceleration showed a positive relationship with adolescent boys' intellectual mastery. Tzuriel & Haywood (1985) found that parent-child relations significantly predicted children's intrinsic motivation. Subjects
who were intrinsically motivated tended to perceive their fathers as more loving, less rejecting, and giving less attention (protecting) as compared to subjects who were extrinsically motivated.

The relationship between parenting variables and children's achievement motivation, in particular, has also been vastly explored. Earlier investigations, in fact, attempted to explain how achievement motivation originated by taking recourse to different aspects of parent-child relationship (Winterbottom, 1958; Rosen & D'Andrade, 1959; Crandall, Preston, & Rabson, 1960; Crandall, Katkovsky, & Preston, 1962; Kagan & Moss, 1962; Crandall, 1963; Crandall, Dewey, Katkovsky, & Preston, 1964). For instance, Crandall, Preston, & Rabson (1960), in a study on preschoolers and their mothers, found that achievement motivation was promoted by parental warmth, especially in response to the child's achievement efforts.

Radin (1971) conducted a study on lower-class preschool children. Results revealed that achievement motivation showed a positive relationship with maternal nurturance and children's cognitive performance. The author (1974) further demonstrated that maternal nurturance was related to the child's motivation to achieve in both male and female subsamples. In case of girls, it was found that the intervening variable between mother's nurturance and children's intelligence was motivation to achieve.

King-Fun Li (1974) examined the relations between parental attitudes, children's test anxiety, and achievement motivation. She found that for achievement-oriented boys, the pattern of parental attitudes included low dominance, open communication, and encouragement of independence, whereas, in the case of achievement-oriented girls, it involved dominance and limited communication. Other studies too,
supported the notion that parental dominance was linked with low need for achievement in sons (Rosen & D'Andrade, 1959; McClelland, 1961; Bradburn, 1963).

Epstein & Radin (1975) examined motivational components as related to paternal behaviour and cognitive functioning in four-year-old white children. Results indicated that motivation acted as an intervening variable between paternal behaviour and cognitive performance of sons. In case of boys coming from middle-class and working-class families, paternal nurturance promoted motivation, and this, in turn, positively influenced intellectual performance. In case of boys belonging to lower-class families, paternal restrictiveness was found to inhibit motivation, which, in turn, inhibited cognitive functioning.

Prasad, Sinha, & Prasad (1979) demonstrated the relationships between perceptions of parental expectations and their own need for achievement. Subjects with low need for achievement believed that their mothers were more strict and had more impact on them as compared to their fathers, who were perceived to be rewarding by subjects with high need for achievement. In case of high n-Ach students, fathers were perceived as being more encouraging, competition-oriented, having higher expectations, and expecting standard of excellence from their sons. Mothers were the source of identification for these four variables in case of students with low n-Ach.

A study by Duss, Kramis, & Perez (1985) demonstrated that children's achievement motivation was significantly related to parental reinforcement both in homework and general educational situations.

Ojha (1985) examined one hundred and twenty, 15-19-year old male pre-university students. He found that "maternal love was associated with good achievement motivation, while maternal rejection
was associated with poorer achievement motivation. Achievement
motivation was also influenced by maternal restriction, permissiveness,
and neglect. Paternal permissiveness and love were associated with a
rise in achievement motivation levels, while paternal restriction,
rejection, and protection bore an inverse relationship with a rise in
achievement motivation”.

What is important is not simply the level of motivation of the
child but also his/her unique motivational qualities. The links between
different aspects of parent-child relationship and specific motivational
patterns of children have also been subjected to analysis and enquiry.

One specific motivational quality of children that has been
associated with parental antecedents is perceived control. MacDonald
(1971) reported that adolescents, whose mothers were more nurturant,
had more predictable standards for their children's behaviour, used more
achievement pressures, and had stronger internal control orientations. On
the other hand, relatively stronger external control orientations were held
by adolescents who described their mothers as more protective, more
inclined to use deprivation of privileges and affective punishment
(males only). A study by Hreshko (1977) revealed that fewer siblings,
communication with the father, and paternal work status were associated
with subjects' internality. Enger, Howerton, & Cobbs (1995) found that
adolescents' locus of control showed a weak, yet, significant negative
relationship with parental verbal interaction. These studies provide
indirect evidence to support the notion that parental child rearing
patterns would be related to children's control understanding too, since
they seem to be related to their internal/external locus of control.

Besides perceptions of control, another set of variables which
have been theorized to be related to parental child rearing practices is
the "self-related" variables. Parenting styles have been considered to be critical in the development of factors such as self-concept, self-worth, and self-esteem in children. Several researches have guided in understanding the relationships between self-esteem, locus of control and parent-child relationship for whites and blacks (Coopersmith, 1967; MacDonald, 1971; Nowicki & Segal, 1974).

Schwartz (1967) proposed that "individual differences in basic personality attributes and self-concepts are fairly well-established by age five, and also that the nature of the parent-child interaction, with both parent and child as contributing partners, is key to the development of the child's self-concept".

Elardo, Bradley, & Caldwell (1977) reported that amongst the home environment measures, emotional and verbal responsivity of the mother, provision of appropriate play materials, and maternal involvement with the child showed overall strongest relation to children's language competence.

Clarke-Stewart, VanderStoep, & Killian (1979) found that measures of children's competence across developmental domains of cognition, language, and social relations were inter-related, and these, in turn, were related to a cluster of stimulating and interactive maternal behaviour.

Halpin, Halpin, & Whiddon (1980) reported that parental variables of instrumental companionship, nurturance, principled discipline, and achievement reward were positively related to a high self-esteem, while protectiveness, external punishment, achievement pressures, deprivation of privileges, and affective punishment were negatively related to it.
Parsons, Adler, & Kaczala (1982) examined parental influences on children's achievement self-concept and related beliefs. They found that children's attitudes were affected more by their parents' attitudes about their abilities as compared to their own performance.

Nelson (1985), in an investigation on 196 seventh and eighth graders, reported that families "with high degrees of parent-child interaction and climates providing support and structure were generally associated with high levels of self-concept (peer, scholastic, and general), satisfaction with family, and, to a lesser extent, achievement. There was some evidence that gains in self-concept and achievement over the school year were related to classroom or family environment variables. Ss with the highest levels of scholastic self-concept had both, classroom and family environments high in support and structure".

Callahan, Cornell, & Loyd (1990) demonstrated that perceived competence in both academic and nonacademic areas was reliably related to parent-adolescent communication in high ability adolescent females (in the age group of 13-17 years).

Research by Wagner & Phillips (1992) revealed that children's perceptions of their academic competence were positively related to their fathers' warmth.

Parish & McCluskey (1995) surveyed 123 college students and found that subjects' self-concepts were directly related to their perceived level of parental warmth, but they were not associated with parental restrictiveness.

All the studies mentioned above lead one to believe that parenting variables would be reliably related to children's perception of cognitive competence.
Another motivational resource which is of interest to the present investigator, and that has been linked to early parent-child relationships is self-regulation. Some researches have shown the association between these two sets of variables. For instance, Brody et al. (1994) examined ninety, 9-12-year-old children and their parents. Analysis revealed that parental caregiving was related to development of self-regulation in children.

Kurdek & Fine (1995), in case of 851 young adolescents (mean age 12.36 years), found that "the positive relation between family control and psychosocial competence was stronger at progressively higher levels of family control, whereas only low levels of control were related to many self-regulation problems".

All the researches quoted above give sufficient grounds to believe that children's control understanding, competence, and self-regulation would be related with parenting variables, and in particular, with parental involvement. Pulkkinen (1982) has found parental involvement to be positively related with competence and achievement motivation. Studies reveal the associations of parental involvement with children's locus of control (Patterson, 1976; Gordon, Nowicki, & Wickern, 1981) and behaviour regulation (Hatfield, Ferguson, & Alpert, 1967; Patterson, 1976).

In a study by Grolnick, Ryan, & Deci (1991), maternal involvement was found to be positively related to control understanding (r=.13, p<.01), perceived academic competence (r=.15, p<.01) and relative autonomy (r=.11, p<.05). The results revealed that father involvement was not related to children's control understanding, but it was linked with perceived competence (r=.12, p<.01) and autonomy (r=.13, p<.01).
Grolnick & Slowiaczek (1994), in a comprehensive study on sixth, seventh and eighth graders, examined similar links between parental involvement and children's motivational resources. The findings indicated that mothers' behaviour and fathers' behaviour as well as cognitive/intellectual involvement, each showed a significant positive correlation with each of the three motivational variables, viz., self-regulation, perceived competence, and control understanding. Maternal personal involvement was positively related with children's perceived competence, while maternal cognitive involvement was positively related with both perceived competence and control understanding in children. Paternal personal involvement showed a positive relationship with subjects' self-regulation and perceived competence. Path analyses demonstrated the links of mothers' behaviour involvement with children's control understanding and perceived competence, mothers' personal involvement with children's self-regulation, and mothers' intellectual/cognitive involvement with children's perceived competence. The findings also indicated the links of fathers' behaviour and intellectual/cognitive involvement with children's perceived competence, and that of fathers' behaviour involvement with children's self-regulation.

On the basis of these findings, it is expected that when parents are highly involved in the schooling of their children, the latter would tend to exhibit greater control understanding, perceived competence, and self-regulation. So, it is expected that all the dimensions of parental involvement, viz., behaviour involvement, personal involvement, cognitive stimulation, and cognitive behaviour would show a positive association with children's motivational resources, viz., control understanding, perceived competence, and self-regulation.
Keeping in view the review of literature which provides some evidence with regard to the relationship of intelligence and parental involvement with children's motivational variables, and that of the latter with academic achievement, the investigator proposes a mediational model of achievement (as given in figure I).

**FIGURE I: HYPOTHESIZED MODEL OF RELATIONS BETWEEN ACADEMIC ACHIEVEMENT AND INTELLIGENCE, DIFFERENT DIMENSIONS OF PARENTAL INVOLVEMENT, AND CHILDREN'S MOTIVATIONAL VARIABLES**

- Intelligence
- Control Understanding
- Perceived Competence
- Self-Regulation
- Academic Achievement

* "Parent" stands for "Mother" in the mothers' model and "Father" in the fathers' model

This model proposes that both intelligence and parental involvement variables affect children's motivational resources of control understanding, perceived competence, and self-regulation, and these, in
turn, affect academic achievement. Thus, it is hypothesized that motivational variables would mediate the impact of intelligence and parental involvement on children's achievement. Moreover, the present investigator plans to explore this model for mothers' and fathers' involvement separately (for reasons explained in chapter I). This model has been adapted from the one proposed by Grolnick and Slowiaczek (1994). These authors studied three aspects of involvement, viz., behaviour, personal, and intellectual/cognitive involvement. Under the variable of intellectual/cognitive involvement, they studied aspects of parents' behaviour such as reading newspapers, listening to the news, and the like. The present investigation, apart from examining parents' behaviour and personal involvement, and their "cognitive behaviour" (which has been renamed in order to distinguish this variable from the forthcoming variable), also attempts to take into account the amount of "cognitive stimulation" provided by parents to children.

Apart from parents' involvement, the present research endeavour also envisages to study the effect of intelligence in the mediational model (which was not examined initially by Grolnick and Slowiaczek, 1994). The inclusion of the variable of intelligence, however, stands justified since one would be able to better understand the extent to which intelligence explains the proposed relationships amongst other variables in the model, and the role played by parental involvement factors in ascertaining their prediction.