(A) Concept of Study Habits

A habit is a learned behaviour pattern that enables an individual to handle specific types of environmental situations. Claiming that one performed a particular behaviour because of habit provides an understandable explanation for an act that otherwise may seem irrational. Habits are linked with conditioned responses (Allport, 1924; Watson, 1919). In Hull's (1943) stimulus-response theory wherein, habit strength reflects the extent to which a behaviour has been reinforced in the past. Therefore, habits denote an individual’s customary ways of behaving.

It has generally been experienced by teachers that some of their students are underachieving and not making the desired progress as is expected of them. This is not true only of students who are endowed with low or average intelligence but also of those having potentially high intelligence. It can be said that the task of learning is not resting upon the shoulders of teachers alone but also on students practicing satisfactory learning procedures.

A major cause of underachievement and probably a decisive one is poor study habits i.e., lack of the art of studying as well as ineffective preparation for examinations. A student’s performance depends on his ability to schedule his time, plan out what to study, concentrating on what he is studying, note-taking, mental review and so on.

Study habits are ways of studying, whether systematic or unsystematic, efficiently or otherwise. Effective study habits include
completing assignments, proper note-taking, daily schedule of study time, assigning proper time for each subject, attentiveness towards teacher, conforming to classroom rules, attending school frequently, seeking help in difficult areas, coming prepared for class, preparing efficiently for tests and examinations, persistence, etc. A student who has acquired good study habits has developed a behaviour pattern that enables him to sit down and begin working on his assignments, which in turn, leads to higher achievement.

A growing body of evidence shows that good study habits are related to high academic achievement (Mehta, 1981; 1984; Singh, Granville & Dika, 2002; Aluja-Fabregat & Blanch, 2004, Attwell, Orpet & Meyers, 1967; Cobb, 1972; Good & Beckerman, 1978; Perry, Guidubaldi & Kehle, 1979), whereas poor study habits lead to underachievement (Finn, Pannozzo & Voelkl, 1995; deJung & Duckworth, 1986; Weitzman et al., 1985; Lloyd, 1974; 1978).

Study habits have both theoretical and practical implications. From a theoretical perspective, efficient learning has a positive correlation with the proper development of study habits. A practical point of view is the incidence of students with an apparently high promise of excellence in academics but who are underachieving. Therefore, keeping in mind the immense importance of study habits in the acquisition of efficient learning, there is much practical value in investigating their nature and influence on learning.

Two related aspects that regularly appear in study habits literature are resilience and engagement. If a student holds a positive self-view and routinely exhibits positive behaviours – e.g., attends school regularly, completes required work in school and out of school – which may serve as protective mechanisms that improve a students chances of school success inspite of being a member of an at-risk group (predisposition of dropping out). This phenomenon has been termed resilience, that is, “successful adaptation to life tasks in the face of social disadvantage or highly adverse conditions”
In a taxonomy of engagement or participatory behaviours, Finn (1989) has categorized these behaviours in three levels. Level I engagement involves the students' acquiescence to school and class rules, including the requirements to arrive at school and class on time, to attend to the teacher, to come prepared for class, and to respond to directions or questions initiated by the teacher. Noncompliant behaviour (e.g. disruptive behaviour, inattentiveness, or refusing to complete assigned work) represents a student's failure to meet these basic requisites. Students who are consistently noncompliant in their classrooms are likely to experience immediate learning difficulties as well as more severe behaviour problems in later years.

Level 2 involves initiative taking on the part of the student. The youngster may initiate questions or dialogue with the teacher or, if experiencing difficulty, may engage in appropriate help seeking behaviour (see Nelson-LeGall & Jones, 1991). Youngsters may display enthusiasm by spending extra time in the classroom before, during or after school, or by doing more coursework than is required. Level 3 engagement involves participation in the social, extracurricular, and athletic aspects of school life in addition to or in place of extensive participation in academic work.

(B) Study Habits and Academic Achievement

School learning is largely based upon the development of certain habits. These habits when developed in a planned way, contribute a great deal in the education process. A considerable amount of research has been conducted in the area of study habits. The results of these studies indicate that a positive association exists between study habits and academic achievement (e.g. Gortner &

Sontakey (1975) attempted to identify factors responsible for affecting the achievement of bright students. For this purpose 50 bright, underachieving male students of the age group of 11-16 years were selected. Results showed that study habits of achievers were better than those of underachievers. A study by Dhaliwal and Saini (1975) investigated aspects responsible for high achievement and underachievement. The results included the findings that high achievement and underachievement are related to students' study habits. Shrivastava (1975) also indicated that study habits were positively related to achievement.

Schafer (1975) conducted an investigation on the image of the "poor student" with the method of polarity profiles using a sample of 1,059, 11-15 year olds. The structure of the stereotype "poor student" was factor analyzed and was found to be loaded with a group factor consisting of "lack of discipline", "lack of diligence" and "social behaviour".

Wood and Napthali (1975) explored the idea that teachers look for different behaviours to reward when making assessments of students' achievement. 16 secondary school teachers of Geography and Mathematics were asked to name the attributes they looked for in a student and to rank these attributes in order of importance. Data were collected on 355 students. Cognitive attributes were generally predominant but there was a class of attributes termed "motivational", which appeared to exert considerable moderating effects. It was in their response to sets of behaviours like "industry" and "perseverance" that teachers showed greatest individual differences in rating performance.
While focusing on the learning style preferences of achieving and underachieving gifted middle school students, Reyneri, Gerber and Wiley (2003) came across profiles of many low achievers who showed a strong need for Tactile and Kinesthetic Modalities; intake of food, drinks, or both; sound in the learning environment; informal seating design, and dim lighting while studying. The low achievers did not perceive themselves to be persistent, and scores revealed that they needed structure in assignments, persistence seemed to be a key to success for the achieving learners, since they were able to maintain high academic performance in all content areas. Over half of the low achievers, on the other hand did not judge themselves to be successful at task completion.

Ferrari & Scher (2000) examined whether students were more likely to delay completion of academic or nonacademic tasks. 37 college students (aged 18-21 years) listed daily academic or nonacademic tasks they intended to complete and whether they actually completed them. This was done either at the beginning of the term or at the end of the term. Results revealed that procrastinated tasks early in the term were more effortful and anxiety provoking than any other task during the term. Procrastinated academic tasks (e.g. homework, reading assignments, studying) in the early part of the term were rated as unpleasurable, while Ss reported later in the term that pleasantness of the task did not affect whether it was procrastinated or completed. These results implied that academic and nonacademic tasks should be challenging, yet fun, to heighten the likelihood that they are completed by students.

In a study conducted with 48, 6th graders to examine the differential effects of self-, peer- and teacher monitoring on achievement behaviour, wherein, assignment completion contracts were monitored daily either by the Ss, their peer choices, or their teacher, and points were awarded concurrently. The investigator
found that peer- and self-monitored contingency programmes were more effective than teacher monitored programmes, (Brown, 1975).

Zimmerman (1996) discussed a programme of research on students' self-regulation of their academic and health functioning from the initial operational definition as well as cited training and intervention studies. This body of evidence showed that students' use of self-regulatory processes, such as learning strategies, goal setting, self-monitoring and self-efficacy beliefs predicted academic and health success as well as self-motivation. The investigator also pointed out that the deficiencies in self-regulation are linked to students' health and academic problems.

Endeavouring to find the relationship of study habits to achievement in the first two years of medical school, Weinstein and Gipple (1974) administered the Study Habits Inventory to 108 freshmen and 78 sophomore medical students. Study skills were more highly related to achievement (Grade Point Average) than to aptitude (Medical College Admission Test) scores. This relationship was stronger for freshmen than for sophomores. Diener (1960) in an attempt to observe the similarities and differences between high achieving and underachieving students, found that the two groups differed significantly in respect to their study habits.

Tuli (1980) in an investigation among school students revealed that study habits are correlates of achievement in mathematics. In a study by Patel (1985) in rural and urban areas, significant differences between the mean scores of study habits of boys and girls were found. Girls from both areas were better than the boys of those areas.

Dickinson and O'Connell (1990) investigated the relationship between study time and test. 113 undergraduates were required to keep a continuous log on the amount of time that they spent reading, reviewing and organising for the course. Weak relationships were found between test scores and total study time as well as time spent
reviewing. A much stronger relationship was found between test scores and time spent organising course content. An extreme group analysis revealed that Ss with high test scores spent 40 minutes/week organising as compared to 10 minutes/week for Ss with lowest scores.

In a study on 79 college students, Gortner and Zulauf (2000) found that time management skills and study time were positively associated with quarter Grade Point Average (GPA) for college students. GPA increased at the rate of 0.025 points per additional hour spent studying per week, which suggested that study time must increase substantially for GPA to improve noticeably.

In an investigation of reading habits and academic achievement of rural and urban Black pupils (mean age 16.7 years) in a developing country, Cherion & Thomas (1995) found that a significant correlation existed between reading habits and aggregated academic achievement. They also found that urban pupils had better reading habits than rural pupils which had effects on their academic records.

Finn & Rock (1997) classified into 3 groups a sample of 1,803 minority students from low-income homes on the basis of grades in which they studied, test scores, and persistence from Grade-8 through Grade-12. These classifications were academically successful school completers ("resilient" students), school completers with poorer academic performance ("nonresilient" completers), and noncompleters ("dropouts"). These groups were compared in terms of psychological characteristics and measures of school engagement. Large, significant differences were found among groups on engagement behaviours, even after background and psychological characteristics were controlled statistically. These findings indicated that student engagement is an important component of academic resilience.
Cohen, Bronson and Casey (1995) conducted a study with the intention of seeing the role of planning in school achievement. 59 students of the age group of 8-10 years were used for the study. It was found that students who planned their classroom work scored better in academics than the non-planning students.

Padron, Waxman and Huang (1999) compared classroom instruction and learning environment of resilient and nonresilient students in elementary schools consisting of predominantly Hispanic students. Results on the self-report measure revealed that resilient students perceived a more positive instructional learning environment and that they were more satisfied with their classroom instructions than nonresident students. Observational results revealed that resilient students spent more time interacting with teachers for instructional purposes. Resilient student were also observed to be watching or listening significantly more than nonresilient students.

Aunola, Sttatin and Nurmi (2000) investigated the relationship between achievement strategies that adolescents deploy in a school context, their self-esteem, school adjustment as well as internalizing and externalizing problem behaviours in 1,185, 14-15 year old adolescents. Results revealed that low self-esteem was associated with adolescents use of maladaptive achievement strategies which, in turn, was associated with their maladjustment at school and internalizing and externalizing problem behaviours. Moreover, the association between adolescents' maladaptive strategies and their externalizing problem behaviour was partly mediated via their 'school adjustment. These results suggest that the adjustment strategies adolescents' deploy are reflected not only in their school adjustment but also in their overall problem behaviour.

It has been found that behaviours like attentiveness and responding to teachers' directions are related positively to school performance (Attwell, Orpet & Meyers, 1967; Cobb, 1972; Good &
Beckerman, 1978; Perry, Guidubaldi & Kehle, 1979). Achievement benefits are also found consistently when students did more work that required, for example, taking extra credit assignments, using supplementary resources in the classroom, or initiating discussions with the teacher about school subjects (Fincham, Hokoda & Sanders, 1989; McKinney, Mason, Perkerson & Clifford, 1975; Swift & Spivack, 1969). Attending and responding to the teacher and initiative taking have also been found to be related to achievement in the upper grades (Anderson, 1975; Kerr, Zigmund, Schaeffer & Brown, 1986; Rowe & Rowe, 1992).

Finn, Pannozzo and Voelkl (1995) carried out a study on students rated by their teachers as inattentive-withdrawn and as disruptive in a sample of over 1,000 Grade-4 pupils. The investigators found that inattentive students avoid calling attention to themselves, may seem distracted or preoccupied, and may give inappropriate responses when called upon. Disruptive youngsters call attention to themselves by creating disturbances that interfere with the flow of the classroom instruction and requires immediate attention from the teacher. Ironically, disruptive students may be more likely to be redirected to productive learning activities as a result. Both sets of behaviours were found to be significantly and substantially associated with reduced achievement test scores, although the performance of inattentive-withdrawn pupils was even poorer than that of disruptive students.

Research suggests that the same maladaptive behaviours continue to be important predictors of poor performance in the junior high school and high school years. For example, absences have been found to be detrimental to academic achievement (deJung & Duckworth, 1986; Weitzman et al., 1985). Lloyd (1974; 1978) found that absences from school as early as Grade-6 were related to dropping out of school. Laffey (1982) examined school engagement in a sample of urban high school sophomores. The investigator found
a host of behaviours to be significantly related to academic achievement including absenteeism, the involvement ratings, ratings of the extent to which assignments were completed, and cued involvement responses given by the students themselves.

Gagne & Parshall (1975) studied the effects of locus of control and goal setting on persistence among 6th graders. Results indicated that internals showed greater persistence than externals at learning digit spans. Similarly, a study by Ruthowski and Domino (1975) on 201 freshman indicated a complex interdependence of study skills (study habits and attitudes) with personality factors.

Tamir (1995) explored strategies that high school students used in studying from textbooks and their relationships to selected environmental and personal variables among 174 students in Grades 9 through 12. It was found that some Ss always used the same strategies whereas, others studied differently for different purposes. The most widely used organizational learning tool was an outline. For a majority of the Ss, it was their goal to extract the main ideas while reading a text. Most Ss studied longer and more in-depth for tests. Only one-fifth of the Ss seriously responded to questions inserted in the text. Ss with high preferences for rote memorization tended to be satisfied with learning from prepared summaries, whereas, Ss with preferences towards principles and critical questioning tended to study in-depth and used a variety of organisational learning tools.

Snyder (2000) explored the relationships between learning styles/multiple intelligences and academic achievement in 128 high school students. 81% of Ss were Tactile/Kinesthetic learners, who learn best by actually doing things rather than just listening and watching. 64% of the Ss were global learners. A positive correlation was found between GPA and Visual Learning Styles. Positive correlations were also found between GPA and preferences for self-
motivation; working with sound, and working alone; as well as perception of self as a responsible and persistent learner.

Aluja-Fabregat and Blanch (2004) analysed the relationships among Cattellian Personality Factors, scholastic aptitudes, study habits and academic achievement. A total of 887 volunteer students from primary education (453 males and 434 females) enrolled in 29 public schools participated in the study. It was found that scholastic aptitudes were the most predictive variables of academic achievement, while the personality traits had a low direct contribution to academic achievement, although the students with higher scores on socialized personality traits showed better study habits than those students with lower scores on personality socialization traits. The relationship between personality and academic achievement seems to be mediated by study habits. Moreover, females obtained higher academic achievement scores than males. These differences could be explained due to the fact that females showed a more socialized personality pattern and better study habits.

Lee-Corbin and Denicula (1998) conducted a case study research. Achievement and underachievement in 34 able children (aged 9-11 years) were investigated. Models of achievers and underachievers that arose out of this research were compared with the literature. Particularly important factors which contributed to the children’s achievement were supportive parents and teachers who were co-operative, although the child also had to have good skills of concentration and presentation, task commitment, high self-esteem and the ability to relate well with peers. In contrast, achievement was related to be limited when various combinations of these factors were missing.

Sirin and Rogers-Sirin (2004) explored school engagement in 336 middle-class African American adolescent students and their biological mothers. The findings suggested that, for African
American middle-class adolescents, educational expectations and school engagement have the strongest relation to academic performance. The results also indicated that positive parent-adolescent relationships were related to better academic performance.

(C) Concept of Study Attitudes

An attitude is a predisposition to respond cognitively, emotionally or behaviourally to a particular object in a particular way (Rajecki, 1990). The object can be anything from inanimate objects such as school, to specific individuals or groups such as teachers, to actions such as studying. Attitudes guide how individuals react to others, what opinions they foster, what causes they support, which brands they buy, as well as numerous other decisions they make on a day-to-day basis.

A majority of theorists agree that an attitude has three components i.e., (a) a cognitive component; (b) an affective component; and (c) a behavioural component, as is illustrated in the figure below (Breckler & Wiggins, 1989).

![Components of Attitudes](image-url)

Attitudes Towards Education

Assessment Methods

[Source: Adapted from Kahn (1984)]

Figure – 2.1: Components of Attitudes
The cognitive component comprises a set of beliefs such as, mathematics involves so many calculations which have no future use. The affective or emotional component consists of an evaluation: a like or dislike towards the object of the attitude. Lastly, the behavioural component involves a way of acting towards the attitude object. For instance, if a student's attitude towards mathematics includes the belief that it has no future use, then he/she may not pay attention in the mathematics class (McGuire, 1989).

If the cognitive, emotional, and behavioural components of attitudes were always in harmony, wherein evaluations and actions always reflected what an individual believed, then all aspects of an attitude that he holds could be measured by measuring any one component. This would mean that by noting the beliefs and feelings expressed by individuals about an attitude object, it could easily be predicted how they would act towards that object (Ostrom, 1989). However, it is difficult to predict specific behaviour on the basis of an individual's attitude.

Many reasons contribute to discrepancies among components of an attitude. First, there are always competing motives and competing attitudes (Rajecki, 1989). For instance, an individual may want to donate some money to a charitable cause but then realize that his spouse's birthday is coming up. As a result, he may end up spending that amount of money on a gift, even though the cognitive and affective component of his attitude towards that particular charitable cause remains positive. Second, there are many ways for expressing an attitude. One individual may donate money towards a charitable cause, another may create awareness in the general public towards that cause, and still another may take part in demonstrations and protests (Ronis, Yates & Kircht, 1989). Therefore, what action a person will take is difficult to predict. Third, as a result of social norms which usually exert pressure, the behavioural aspect of an
attitude might be suppressed by an individual even though he/she retains the other aspects (Ajzen, 1989).

Attitudes are not something that individuals are born with. However, from early childhood onwards, individuals continue to form attitudes about new objects.

It is a basic principle of psychology that when one stimulus regularly precedes another, the one that occurs first can become a signal for the second. Over time, people learn that when the first stimulus occurs, the second will soon follow. This process known as classical conditioning has important implications for attitude formation (Baron, Byrne & Branscombe, 2006). Classical conditioning, has been known to aid in producing positive or negative attitudes. For example, people are more likely to form a positive attitude towards an object if it is repeatedly paired with enjoyable music (Gorn, 1982), soothing colours (Middlestadt, 1990), or other stimulus that elicit good feelings (Aaker & Stayman, 1989).

Behaviours that are followed by positive outcomes are strengthened and tend to be repeated, whereas, behaviours that are followed by negative outcomes are weakened or decrease in their likelihood of being expressed. Thus, another way that attitudes are acquired is through the process of instrumental conditioning. By rewarding children with smiles, approval, or hugs for stating the "right" views—the one's they themselves favour—parents and other adults play an active role in shaping youngsters' attitudes. It is for this reason that until they reach their teen years—when peer influences become especially strong—most children express political, religious, and social views that are highly similar to those of their family members (Baron, Byrne & Branscombe, 2006).

A third process through which attitudes are formed can operate when parents as well as other individuals of influence have no desire to directly transmit specific views to children. This process is called observational learning, and it occurs when individuals acquire new
forms of behaviour or thought simply by observing the actions of others (e.g., Bandura, 1997). In the case of attitude formation, observational learning seems to play a vital role. On numerous occasions, children hear their parents say things that they are not supposed to hear, or see their parents doing activities that their parents tell them not to perform. In fact, parents might even explicitly say, "Don't do what I do". For instance parents who smoke often warn their children against smoking. What will children actually learn from these incidences? Evidence indicates that they generally learn to do what their parents do, not what they say. Another observational learning source through which both children as well as adults acquire attitudes is exposure to mass media, magazines, films, television advertisements, and so on (Baron, Byrne & Branscombe, 2006).

The fourth aspect on the basis of which attitudes are formed is social comparison. This is the tendency to compare ourselves with others to determine whether our views about any object are correct or incorrect. In order to be similar with others that an individual likes, he/she often adopts the attitudes that they uphold (Maio, Esses & Bell, 1994; Terry, Hogg & Duck, 1999; Duck, Hogg & Terry, 1999; Terry & Hogg, 1996).

Another basis for forming attitudes is direct experience with objects. The mere exposure effect is an interesting aspect of experience. All these being equal, attitudes toward an object tend to become more positive as individuals are exposed to it more often (Zajonc & Markus, 1982).

Therefore, attitudes can be termed as almost automatic reactions of an individual to the world around him. They can be formed as rapidly as we are exposed to the attitude object and can influence basic approach or avoidance responses. Attitudes can serve several different functions.
Chapter II  Conceptual Framework and Review of Literature

Attitudes serve a knowledge function by aiding an individual's interpretation of new information and influencing basic approach or avoidance responses. For instance, Chen and Bargh (1999) found that positive attitudes toward an object were expressed when subjects had to pull a lever toward themselves, whereas negative attitudes were more readily expressed when they had to push a lever away from themselves. This experiment suggests that attitudes colour people's perceptions and responses. Indeed, research indicates that individuals view new information that offer support for their attitudes as more convincing and accurate than information that refutes their attitudes (Munro & Ditto, 1997). Likewise, people perceive information that is weak as relatively strong when it is consistent with their existing attitudes, compared to when it is inconsistent with their attitudes (Chaiken & Maheswaren, 1994). Conversely, a considerable amount of evidence indicates that people view sources that provide evidence contrary to their views as highly biased and unreliable (Giner-Sorolla & Chaiken, 1994; 1997). In other words, attitudes assist individuals to quickly make sense of objects and issues and to prepare them to respond to attitude-relevant information in ways that maintain those attitudes (Baron, Byrne & Branscombe, 2006).

Attitudes can provide a means of expression to central values and beliefs, and thereby, communicate who a person is and who he or she is similar to. It has been seen that individuals are more likely to adopt the attitude position of someone with whom they share an important identity (McGarty et al., 1994). The thoughts people have when they encounter a new object and form an attitude towards it can depend on people's own group membership and how important it is to them (Fleming & Petty, 2000). In this way attitudes can serve an identity or self-expression function (Baron, Byrne & Branscombe, 2006).
Another function that attitudes often serve is a *self-esteem function* wherein, holding particular attitudes help individuals to maintain or enhance their feelings of self-esteem or self-worth. This aspect is usually observed when we feel we are right and moral by expressing and behaving according to our attitudes (Baron, Byrne & Branscombe, 2006). Attitudes also sometimes serve an *ego-defensive function* (Katz, 1960), helping people to protect themselves from unwanted information about themselves. Most individuals want to be accepted by others, which may cause them to have more accepting or positive attitudes towards many issues than they actually do. They do this because they assume that their peers also hold the same attitudes and want to defend their self-view as being like everyone else (Miller & Prentice, 1996).

When it comes to the field of education, there are certain attitudes towards scholastic aspects and activities which are important. These are called *study attitudes*. Brown and Holtzman (1967) have divided study attitudes into two broad categories i.e., (i) a student’s opinions of teachers and their classroom behaviour and methods. This set of opinions is termed as *teacher approval*; and (ii) a pupil’s approval of educational objectives, practices, and requirements, which is called *education acceptance*. When these attitudes are expressed positively by a student then he/she has a good chance of performing well in studies. In other words, when a student holds positive study attitudes, then as a result of holding these positive attitudes he/she participates well in the education process which in turn is conducive to better grades. However, when students hold negative study attitudes an opposite effect results. A lot of research shows the relationship of study attitudes with academic achievement (e.g., Jovanovic & King, 1998; Obach, 2003).

Disapproval for one’s teachers, their classroom behaviour and teaching methods can be expressed in the following ways: (i) teachers don’t understand the needs and interests of students; (ii)
teachers make their subjects too hard for the average student; (iii) teachers allow their likes and dislikes for students to influence their grading; (iv) the easiest way to get good grades is to agree with everything the teacher says; (v) students who ask questions and take part in class discussion are only trying to “get in good” with the teacher; (vi) my teachers don’t make their subjects interesting and meaningful to me; (vii) the best way to get good grades is to flatter teachers; (viii) teachers are too bossy, strict and know-it-all; (ix) teachers are too narrow minded and set in their ways; (x) teachers secretly enjoy giving their students a “hard time” and deliberately give tests on the days following parties and important cricket matches; (xi) teachers fail to give enough explanations of the things they are trying to teach and the illustrations, examples and explanations they give are too dull and hard to understand; (xii) teachers do not give the same amount of attention and help to all their students as well as they look down upon the poorer students and make fun of their mistakes; (xiii) teachers do not go into teaching mainly because they enjoy it.

A pupil’s rejection of educational objectives, practices and requirements can be seen in negative beliefs like: (i) my dislike for certain subjects and teachers causes me to neglect my school work; (ii) if I am given the freedom to choose the subjects that I like, then I will study harder; (iii) students are not given enough freedom in selecting their own topics for themes and reports; (iv) lack of interest in my school work cause me to daydream and draw pictures during classes; (v) I feel confused and undecided as to what I want to study in school and what I want to do after I get out of school; (vi) having a good time and getting one’s full share of fun out of life is more important than studying; (vii) I feel like skipping school whenever there is something I’d rather do; (viii) teachers tend to avoid discussing present-day problems and events in their classes; (ix) the things taught in school do not help one to meet adult problems; (x) I feel that my grades show about what I can really do; (xi) I feel that
the main reason for going to college is to be admired and envied by others, so it is not worth it for me to waste my time and effort on studies; (xii) I think it might be best for me to drop out of school; (xiii) too much reading or studying gives me a headache; (xiv) I believe that higher grades are given to students who memorize facts than to those who "think things through".

When students harbour such dysfunctional beliefs about studying, they do not display proper study habits which leads to poor academic achievement (Abu-Hilal, 2000; Singh, Granville & Dika, 2002; Robbins et al., 2004).

(D) Study Attitudes and Academic Achievement

The idea that successful students develop a sense of identification with school while less successful students do not, or not to the same extent, has been described in positive terms under such rubrics as "affiliation", "involvement", "attachment", "commitment", and "bonding" and in negative terms such as "alienation" and "withdrawal". These terms denote two terms in common that constitute a good working definition of identification. First, students who identify with school have an internalized conception of belongingness; they believe that they are discernibly part of the school environment and that the school constitutes an important part of their own experience. Secondly, these students value success in school relevant goals (Finn, 1989).

It has come to light that both these aspects of identification under various aliases have been theoretically and empirically related to the occurrence of problem behaviour. Commitment, for example, refers to a valuing aspect. Gold and Mann (1984) examined the effectiveness of alternative schools for disruptive and delinquent youngsters. Results revealed a significant reduction of disruptive behaviour in school and concomitant increase in students' "optimism about their chances to succeed at school and their commitment to the academic role of a student" (p.153).
In a study by Polk and Halferty (1972) more than 1,800 adolescents were administered a long checklist. Items in this checklist included home background measures, school participation and performance, and out-of-school activities. Factor analysis of this checklist revealed one factor that discriminated strongly among individuals. Labeling the factor "commitment", the authors concluded that

Delinquency among at least some youth may be a function of the lack of commitment to school and adult success.... The uncommitted delinquent youth, it would appear, is characterized by behavioural withdrawal from school. He does not study, he receives poor grades, and he does not participate in activities.... there is a pattern of psychological discomfort and alienation in the attitudes the delinquent and uncommitted youth exhibits towards the school (p.85).

Firestone and Rosenblum (1987) identified two dimensions of commitment in transcripts of interviews with urban high school students. These were commitment to "learning" and commitment to the "the place". Students did not talk much about the latter but it was apparent that the school "is where students can come to be with their friends or where they find activities other than educational ones to keep them occupied" (p.10). This use of the term commitment is broadened to encompass a belongingness component as well as valuing.

The concept of alienation was popular in the sociological literature of the 1960's as a way to depict noninvolvement or nonattachment. The essential components of alienation, according to Seeman (1975), are powerlessness, meaninglessness, normlessness, self-estrangement, social isolation, and cultural estrangement. Among them, social isolation and normlessness parallel the belonging and valuing aspects of identification most closely. Reid
(1981) found significant differences between persistent school absentees and comparison groups on six of nine items reflecting these two aspects of alienation.

Normlessness and social isolation were measured as mediating variables in Elliott and Voss' (1974) longitudinal study of dropout and delinquency. Following 2,617 students from ninth grade onwards, the investigators found academic success to be related to both normlessness (correlations from -0.3 to -0.32) and social isolation (correlations from -0.11 to -0.49) at school (pp 212-217). Further, normlessness in school was significantly correlated with delinquent acts, and both normlessness and social isolation were associated with dropping out of school. The authors concluded that "delinquent behaviour and dropping out of school are alternate responses to failure and alienation."

Kronick (1974) investigated the relationship between attitudes toward learning and academic achievement among 195 junior high school students. Results indicate that in selected cases there were significant differences noted in academic achievement because of perception of the setting in school as well as classroom as "open" or "closed".

In a longitudinal study of 1,301 students and the teachers they had for mathematics before and after the transition to junior high school, Midgley, Feldlaufer and Eccles (1989) assessed whether changes across the transition in students' perception of their teachers' supportiveness were related to changes in their valuing of mathematics. The investigators found that when students moved from elementary school teachers they perceived to be low in support to junior high school teachers they perceived to be high in support, the intrinsic value of mathematics was enhanced. On the other hand students who moved from teachers they perceived to be high in support to teachers they perceived to be low in support experienced a sharp decline in both the intrinsic value and the perceived
usefulness and importance of mathematics. For students’ perceptions of the usefulness and importance of mathematics there was an interaction with achievement level. Mathematics value decreased more sharply during the first year of junior high school for low achieving students who moved from more supportive to less supportive teachers than for high achieving students who experienced the same change.

Karabenick and Sharma (1994) examined college students’ perception of their teachers’ support towards student questioning (SQ). Perceived teacher support had significant and consistent relationships with students’ motivational tendencies and strategy use typical of self-regulated learners. Perceived teacher support affected the likelihood of SQ by influencing whether students’ had a question to ask and their inhibition to do so.

The purpose of a longitudinal study conducted by Stevenson and Newman (1986) was to investigate the prediction of children’s: (a) academic achievement on the basis of cognitive tasks given prior to Kindergarten, and (b) academic attitudes on the basis of teachers’ and mothers’ rating of the children’s general mental abilities and actual academic achievement. Students were tested initially before entering Kindergarten. 105 to 154 of the 255 Kindergarten children were followed through Grades 1, 2, 3, 5, and 10. A subset of cognitive tasks maintained a high relation to high school achievement scores, especially in reading. Tenth grades self-concept of ability, expectancy of success, value of success, and the perception of task difficulty showed effects of sex and academic context area, with boys generally being more favourable towards mathematics and girls toward reading. Children’s attitudes were related both to mothers’ earlier ratings of the children’s cognitive abilities and actual achievement scores; this was especially the case for girls. There was a negative relation between mothers’ ratings and girls’ attitudes toward mathematics.
Leondari, Syngolliton and Kiosseoglou (1998) examined relations between possible selves, academic performance, motivation, self-esteem and persistence on task. The assumption was that envisioning a desired end-state produced information processing favouring a desired state, and as a consequence, the action seems more likely and people are able to construct more efficient plans. As the authors expected, academic performance was best for participants who were able to produce well elaborated, vivid-pictures of future selves as they outperformed the other groups in academic achievement. There was also an indication that this group of students showed more persistence on tasks.

Anderman, Anderman and Griesinger (1999) conducted two studies with the purpose of examining the role of present and possible (future) academic selves. In the first study, the relations between present and future selves and changes in grade point average (GPA) between the 6th and 7th grades were examined. Survey data were collected from a sample of 315, 7th grade students. Results indicated that positive present and future academic self-concepts were related to positive changes in grade point average. In addition, when adolescents’ present perceived academic selves were higher than their future academic selves, grade point average increased. In the second study, survey data were collected from different sample of 220, 6th, 7th and 8th graders. The relations between present and future selves, and mastery and performance approach achievement goals were examined. Results indicated that a present good-student self-concept was related positively to both performance and mastery goals, whereas, a future good-student self-concept was related positively only to performance goals.

A review of research by Leviton (1975) indicated a consistent, moderate correlation between children’s self-concept and academic achievement. Stenner and Katzenmeyer (1976) conducted a study among 225, 6th graders. Results showed that self-concept added
significantly to the prediction equation for achievement over and above the contribution of nonverbal intelligence. Self-concept accounted for 22% of the variance in reading achievement, and combined with nonverbal intelligence to account for 34% of variance in reading achievement.

Mboya (1998) examined sex and age variations for scores on self-concept of academic ability and academic achievement among 244 African adolescents (aged 13-17 years). Correlations between scores on self-concept of academic ability and academic achievement by sex and age were also examined. No significant sex differences were found, but there were significant age differences on the self-concept scores and measures of achievement in English, science, history, but not mathematics. A significant positive correlation was found between self-concept scores and academic achievement for boys and girls and in all age groups, but the magnitude of the correlation with achievement in mathematics was stronger among boys than among girls.

The relations between perceptions of competence, self-efficacy and types of goals, and their influence on school achievement were examined among a sample of 224 girls and 193 boys of Grade-6. Results showed that even though perceptions of competence and self-efficacy were related, the latter better predicts school achievement. No negative influence was observed for the combination of low self-efficacy and performance goals on school achievement (Boileau, Bouffard & Vezeau, 2000).

Rao, Moely and Sachs (2000) conducted an investigation in order to examine the relationship between cognitive and motivational variables and their relationships to mathematics attainment. For this purpose, 94 Hong Kong Chinese students completed the Motivated Strategies for Learning Questionnaire-Chinese Version (MSLQ-CV) and the Mathematics Motivation Questionnaire (MMQ) in year 10 and 12 months later in year 11. The
four scales of the MSLQ-CV were self-efficacy, intrinsic value, test anxiety, and strategy use. The four scales of the MMQ were, self-concept of mathematics ability, ego-involved motivation, task involved motivation and perceptions of parents’ views about school performance. Low achievers perceived academic learning as less useful over time and reported spending less time studying in year 10 than in year 11, but high and low achievers did not differ on their use of self-regulated learning strategies. Performance on a public examination in mathematics was predicted by prior achievement and self-concept of mathematics ability.

The extent to which changes in children’s self-assessments’ of their competence to master academic material are influenced by their developing beliefs about the issues of academic outcomes, goal orientation for learning, and study strategy use were examined in a longitudinal sequential study by Obach (2003). 5th, 6th and 7th graders with a mean age of 151 months i.e., 12.58 years who transitioned to the middle school within the same school were asked to complete a self-report questionnaire for 3 consecutive years. Nearly two-thirds of the children were members of minority groups and slightly more than half were female students. Results showed that ability attributions for successful outcomes, mastery orientation, persistence, and self-monitoring strategy use predicted concurrent perceptions of academic competence for all standards. Initial self-perceived competence strongly predicted perceived academic competence one-year later.

The purpose of Guay, Larose and Boivin’s (2004) study was to test children’s academic self-concept, family socioeconomic status, family structure (single parent vs. two parent family) and academic achievement in elementary school as predictors of children’s educational attainment level in young adulthood within a ten-year longitudinal design. Participants (254 girls, 211 boys) were three cohorts of students in Grades- 3, 4 and 5 from ten elementary
schools. Results from structural equation modeling revealed that academic self-concept predicted educational attainment level ten years later over and above prior achievement. Moreover, this pattern of results was invariant across cohorts. In addition, regression analysis based on a restricted sample of 243 students indicated that the academic self-concept and educational attainment level relation was still significant while controlling for family socioeconomic status, family structure (single parent vs. two parent family) and academic achievement.

Greene et al. (2004) used path analysis to test predictions of a model explaining the impact of students' perceptions of classroom structures (tasks, autonomy support and mastery, as well as evaluation) on their self-efficacy, perceptions of the instrumentality of class work, and their achievement goals in a particular classroom setting. Additionally, the impact of self-efficacy, instrumentality and goals on students' cognitive engagement and achievement was tested. There were 220 high school students who participated in this study. Data strongly supported the model demonstrating that students perceptions of classroom structures are important for their motivation. Also supported was the importance of perceiving the current class work as being instrumental for future success.

As study by Shepherd Johnson (2000) served as an exploratory investigation of students' awareness regarding the relevance of school in terms of future and career. A socioeconomically and ethnically homogeneous sample of 373, 6th and 9th grade students was selected. Results indicated that while 2 out of 3 students were able to identify some form of knowledge they thought would be needed for career success, their answers were vague and fell into 4 categories: getting an appropriate education (39%), learning specific course subject matter (22%), gaining job specific knowledge (21%) and having general intelligence (18%). None of the students mentioned anything about the knowledge they were currently
acquiring in their general studies as being needed for future success. Findings suggested that these students were simply not aware of the connections between school and work. Other than their occupational or technical courses, and to some extent, their maths and science courses, these students did not see how school (i.e., content knowledge and process skills developed in their courses) applies to the outside world. Moreover, they are heavily influenced by the misconception that, for school work to be relevant to their employment, it needs to be career specific.

Lau et al. (2000) studied and compared the views of 506 Chinese and 367 American high school students (mean age 15 years) as to what attendance at school should achieve, and what brings success at work. The domains of school and work were perceived by American students to be related, but not by Chinese students. American students were found to be more firm in the view that school should teach them to understand science, think critically, be useful to the society, and consider the family first. In contrast, Chinese students showed greater preference that school should teach them to face challenges, creatively sacrifice and respect authorities as well as prepare them to earn money for respect, and luxuries, and to enter high status colleges and jobs.

In a study among 146 adolescent students aged 14 to 18 years, DeMello and Imms (1999) found significant correlations between self-esteem, locus of control and coping styles. Those with high self-esteem and internal locus of control scores were high users of the productive "problem solving" coping style as well as they showed significantly more positive attitudes toward school and positive perceptions of their academic performance. The females in this study reported a more positive attitude toward school.

Skinner, Zimmer-Gembeck and Connell (1998) quote that research demonstrates that children's perceived control (PC) exerts a strong effect on their academic achievement and that, in turn, the
children's actual school performance influences their sense of control. At the same time developmental research shows systematic age-graded changes in the processes that children use to interpret control experiences. Their study examined (1) age differences in the beliefs-performance cycles, and (2) the effects of these cycles on the development of PC and classroom engagement from 3rd to 7th grade. Data on 1,608, 8 to 13 year olds and 53 of their teachers were collected over 3 years. Data included the S's reports of PC and individual interactions with teachers, teachers reports of Ss' engagement in class, and achievement test performances. Results showed that Ss' who experienced their teachers as warm were more likely to develop optimal profiles of PC; these beliefs supported more active engagement in class and better academic performance. In contrast, Ss' who experienced their teachers as unsupportive developed beliefs that emphasized external causes governing them. Such profiles of PC predicted escalated classroom dissatisfaction and lower achievement.

Little, Stetsenko and Maier (1999) examined in a longitudinal sample of 434 Moscow children and adolescents (grades 2-11) the intercorrelations between their action-control beliefs about school performance and their actual school performance. Although participant's beliefs about their own ability showed a steady increase throughout childhood and adolescence, their beliefs in their own effort and the accessibility of teachers and their general control expectancy decreased throughout childhood and adolescence. In addition, a consistent and reciprocal cross-time pattern of predictive effects between beliefs and performance emerged, with beliefs about personal ability being associated with changes in subsequent performance and vice-versa.

Robbins et al. (2004) examined the relationship between psychosocial and study skills factors (PSFs) and college outcomes by meta-analyzing 109 studies. On the basis of educational persistence
and motivational theory models, the PSFs were categorized into 9 broad constructs: achievement motivation, academic goals, institutional commitment, perceived social support, social involvement, academic self-efficacy, general self-concept, and contextual influences. Two college outcomes were targeted: performance (cumulative grade point average: GPA) and persistence (retention). Meta-analysis indicated moderate relationships between retention and academic goals, academic self-efficacy, and academic related skills (ps = .340, .359, and .366, respectively). The best predictors for GPA were academic self-efficacy and academic motivation (ps = .496 and .303, respectively). Supplementary regression analysis confirmed the incremental contributions of the PSFs over and above those of socioeconomic status, standardized achievement, and high school GPA in predicting college outcomes.

Osborne, Simon and Collins (2003) reviewed the major literature about attitudes to science and its implications over the past years. This has shed important light on the subject as the investigation of students’ attitudes toward studying science has been a substantive feature of the work of the science education research community for the past 30 to 40 years. Attitudes toward science have been defined by Osborne, Simon and Collins (2003) as "the feelings, beliefs, and values held about an object that may be the enterprise of science, school science, the impact of science on society or scientists themselves".

As is clear from this definition, attitudes toward science do not consist of a single unitary construct, but rather consist of a large number of sub constructs, all of which contribute in varying proportions towards an individual’s attitudes towards science. Over the years, numerous studies (e.g., Breakwell & Beardsell, 1992; Brown, 1976; Crawley & Black, 1992; Gardner, 1975; Haladyna, Olsen & Shaughnessy, 1982; Keys, 1987; Koballa Jr., 1995; Oliver & Simpson, 1988; Ormerod & Duckworth, 1975; Piburn, 1993;
Talton & Simpson, 1985, 1986, 1987; Woolnaugh, 1994) have incorporated a range of components in their measures of attitudes to science which include: the perception of the science teacher; anxiety toward science; the value of science; self-esteem at science; motivation towards science; enjoyment of science attitudes of peers and friends towards science; attitudes of parents towards science; the nature of the classroom environment; achievement in science; and fear of failure on course.

Like attitudes towards other objects, attitudes towards science are also essentially a measure of the subjects' expressed preferences and feelings. So, of themselves, they will not necessarily be related to the behaviours that a student actually exhibits. Behaviours may be influenced by the fact that attitudes other than the one's under consideration may be more strongly held; motivation to behave in another way may be more stronger than the motivation associated with the expressed attitude; or, alternatively, the anticipated consequences of a specific behaviour may modify that behaviour so that it is inconsistent with the attitude held. For example a student may express interest in science but as his/her peers may hold negative attitudes towards science, he/she may not express it publicly (Brown, 1976; Potter & Wetherell, 1987).

Studies show that a change occurs in students attitudes towards science during compulsory schooling. A number of studies have documented a decline in attitudes towards science from age 11 onwards (Breakwell & Beardsell, 1992; Brown, 1976; Doherty & Dawe, 1988; Hadden & Johnstone, 1983; Harvey & Edwards, 1980; Johnson, 1987; Simpson & Oliver, 1985; Smail & Kelly, 1984; Yager & Penick, 1986). All of this goes to show how children's interest and attitude toward science declines from point of entry to secondary school. Some evidence from England also indicates that students' attitude towards school science are declining even in primary schools (Murphy & Beggs, 2001; Pell & Jarvis, 2001). Nevertheless,
in most other countries, the evidence seems to indicate that children enter secondary school/junior high school with a highly favourable attitude towards science and interest in science, both of which are eroded by their experience of school science (Osborne, Simon & Collins, 2003), especially for girls (Kahle & Lakes, 1983).

Data from a study by Hadden and Johnstone (1983) shows no improvement in attitude towards science from the age of 9 onwards, which leads to the speculation that school science education might do more harm than good. However, another aspect to consider is that research shows that attitudes towards all subjects decline in general during adolescence (Eccles & Wigfield, 1992; Epstein & McPartland, 1976).

An apparent contradiction can be noted between students' attitude towards science in general and their attitude towards school science. Repeatedly, many surveys have pointed out the fact that students' attitude towards science itself is positive. A large-scale survey conducted by the English, Assessment of Performance Unit (1988) showed that the majority of 15 year old students found science both interesting and useful for jobs, even though it is not considered easy.

The Research Business (1994), a large-scale market research survey conducted in England for the Institute of Electrical Engineers. The results, based on a sample of 1552 students aged 14-16 years, showed that students saw science as useful (68%) and interesting (58%) and that there were no significant differences among genders. A large proportion of these Ss' saw the relevancy of science as a reason for studying it (53%) and that it offered better employment prospects (50%). 87% of the respondents rated science and technology as important or very important in everyday life.

Students' attitudes toward school science vary with the specific sciences (Havard, 1996; Osborne & Collins, 2000; Whitefield, 1980). Osborne and Collins (2000) found that biology,
human biology in particular, was relevant and pertinent, as it addressed students’ interest of their own bodies and concerns about health and disease. On the other hand, students had a difficulty to identify the relevance of the physical sciences. For instance, in this study one aspect of chemistry that attracted universal antipathy among non-science students was the periodic table. Students experienced a difficulty in memorizing the constituents of the periodic table as well as they failed to perceive its relevance to their everyday lives, either in the present or in the future. These students argued that they were never need to know all of those equations or chemicals. In addition to this antipathy, their technology school science course dealt with technologies of yesteryear—the Haber Process and the Blast Furnace, which was not a part of their immediate experience in comparison to the silicon chip, modern materials, informatics, and medical imaging. Without these essential ingredients of relevance, sustaining student interest was difficult, if not impossible.

A study conducted by Ebenezer and Zoller (1993) among 1564 Grade-10 (16 year old) students revealed that 72% of the Ss’ indicated that they thought science to be valuable and 73% indicated that science in school is important, but nearly 40% indicated that they found science classes boring.

One of the most significant factors that influences attitudes towards science is gender. Meta-analysis of a range of research studies by Becker (1989) and Weinburgh (1995) showed that boys have a consistently more positive attitude towards school science than girls, although the effect is stronger in physics than in biology.

A point that has become clear from an extensive literature on the subject, is that girls’ attitudes towards science are significantly less positive than boys (Breakwell & Beardsell, 1992; Erickson & Erickson, 1984; Harding, 1983; Harvey & Edwards, 1980; Hendley et
In the study by Kahle and Lakes (1983), Kahle has contended that her data shows that there is a gap between young girls' desire to observe common scientific phenomena and their opportunities to do so. She also argues that her data shows conclusively that "lack of experiences in science leads to a lack of understanding of science and contributes to negative attitudes to science". Similarly, Johnson (1987) argues from her data i.e., measuring a range of common childhood experiences of children that 'established differences in the interests and activities of boys and girls result in parallel differences in their science performances'. Jovanovic and King (1998) have a similar thesis arguing that girls, rather than boys, make comparative judgments across academic domains. So girls' declining perception of their ability may reflect that, as time progressed, girls perceived themselves to be better at other school subjects (e.g. english) and, therefore, not as good at science.

Numerous studies have been conducted with the purpose of examining the relationship between socioeconomic class and attitudes towards science, the results of which are conflicting with each other. No significant relationship has been found by most studies. However, a study by Breakwell and Beardsell (1992) did find that socioeconomic class was negatively associated with attitudes towards school science. Children from the lower social class had more positive attitudes. This finding is contrary to earlier findings by McEwen, Curry and Watson (1986) and Brown (1976). Therefore, the role of social class remains unclear.

Breakwell and Beardsell's (1992) study is interesting in that, somewhat exceptionally, it does try to develop a model to account for children's attitudes. Like Simpson and Oliver (1990), it finds some evidence for a relationship between parental support and attitudes towards science. In particular, Breakwell identifies
attitudes to science as being more critically dependent on the support of the mother. However, as she points out, that mothers may be unwittingly perpetuating the inequalities in science by encouraging their sons more than their daughters.

Another factor that seems to be a significant determinant of attitude towards science is the attitude of peers and friends (Breakwell & Beardsell, 1992; Talton & Sigmpson, 1985). The strongest support for this finding comes from the work of Simpson and Oliver (1985) who found that this relationship increased from age 11 onwards, peaking at age 14. They suggest that the effect is a kind of snowball phenomenon with students becoming influenced by group norms. However, a better explanatory model has been provided by Head’s (1985) account of adolescence as a period of moratorium where the individual is attempting to establish self-identity and hence, is more strongly influenced by the normative expectations of peers. For boys, studying science a subject that both genders perceive as stereotypically male, and in the case of girls not studying science, is a means of establishing one’s own gendered identity.

Several studies have pointed towards the influence of classroom environment as a significant determinant of attitudes (Haladyna et al., 1982; Myers & Fouts, 1992; Talton & Simpson, 1987). In a detailed study by Myers and Fouts (1992), among 699 students from 27 high schools, it was found that the most positive attitudes were associated with a high level of involvement, very high level of personal support, strong positive relationships with classmates, and the use of a variety of teaching strategies and unusual learning activities. Similar evidence which points that variety is the spice of science education comes from the work of Piburn (1993) who, using data from interviews with 149 students (83 from elementary school, 35 from junior high school, and 31 from
high school) reports that it is one of the key factors for generating interest in science education.

Similar conclusions that school, particularly classroom variables, is the strongest influence on attitudes towards science were drawn by Simpson and Oliver (1990) from their extensive and major longitudinal study. Further support for this view on the importance of effective pedagogy is provided by the detailed work of Cooper and McIntyre (1996) in their study of effective teaching in history and english (not science). These researchers found that there were common aspects of teaching that were perceived to be effective by teachers as well as pupils. These were: clear goals for pupil learning; clarity in communication of lesson goals and agenda to pupils; use of preview and review of lesson content; helping students to contextualize the content in terms of their own experience and knowledge, as well as in terms of other teaching goals and learning experiences; some willingness to allow pupils to have input into goal and agenda setting; a supportive social context designed by the teacher to help pupils feel accepted, cared for and valued; an ability and willingness to allow for different cognitive styles and ways of engaging with the learning process among pupils, through multiple exemplification and the use of different types of illustrations and modes of presentation, and offering pupils a choice from a menu of possible ways of engaging; and a willingness to take into account pupil circumstances and to modify/pace/structure learning tasks accordingly.

Evidence that it is the quality of teaching of school science that is a significant determinant of attitudes towards school science has also been found by Woolnough (1994); Ebenezer and Zoller (1993); Haladyna et al. (1982). Further support for the significance of the teacher can be found in the works of Sundberg et al. (1994) who examined the attitudes towards science of 2965 college students, of Piburn (1993), and of McMillan and May (1979).
These research findings provide strong confirmatory evidence for children's and adults' anecdotal stories about the influence of teachers on students' attitudes towards school science. Furthermore, they raise substantial questions about why the pedagogy of some science teachers is so unappealing to the majority of students, suggesting that, while science teachers may be knowledgeable about their subject, they are failing to achieve their primary task of establishing a range of varied learning opportunities and communicating their subject effectively (Osborne, Simon & Collins, 2003).

The relationship between attitudes towards science and achievement is a key consideration in a huge body of research, as much of the generalized concern and interest in attitudes towards science is based on a somewhat simplistic notion that "the best milk comes from contented cows" (Fraser, 1982). However, Gardner's (1975) review of the research evidence offered little support for any strong relationship between attitudes and achievement. Writing somewhat later, Schibeci (1984) draws a stronger link between the two, quoting studies that show a correlation of 0.3 to 0.5. However, he also cites studies that show no relationship. The current position is best articulated by Shringley (1990), who argues that attitude and ability scores can be expected to correlate moderately. Likewise, the measures used in the TIMSS study, albeit somewhat unsophisticated, have found a consistent relationship between attitude and achievement (Beaton et al., 1996). Weinburgh's (1995) meta-analysis of research suggests that there is only a moderate correlation between attitudes towards science and achievement, although this correlation is stronger for high and low ability girls, indicating that, for these groups, 'doing well' in science is closely lined with 'liking science'. Similar findings have appeared in major studies conducted by Simpson and Oliver (1990); Jovanovic and King (1998); and by Osborne and Collins (2000).
The exception to these findings is the research of Oliver and Simpson (1988). These authors have argued that their longitudinal study shows a strong relationship between the three affective variables—attitudes towards science, motivation to achieve and the self-concept that the individual has of his own ability—and his/her achievement in science.

Within all of the literature reviewed by Osborne, Simon and Collins (2003) there is some disagreement about the nature of the causal link and whether it is attitude or achievement that is the dependent variable. The essential premise permeating much of the research is that attitude precedes behaviour. Somewhat in contrast, the work of Millar and Tesser (1986, 1989) would suggest that the affective and cognitive components of individuals are often independent of each other. Perhaps the only tenable position is that the two are inescapably linked in a complex interaction. Research clearly shows that early childhood experiences serve as a major influence on academic interest. Feelings of enjoyment and interest in science combined with success in junior school science courses are likely to lead to a positive commitment toward science that is enduring. Nevertheless, this is only a partial picture and children can achieve highly in science without holding a positive attitude towards it (Osborne, Simon & Collins, 2003).

The aim of Georgiou, Stavrindes and Kalavana's (2007) study was to examine whether there are gender differences in mathematics achievement, in attitudes towards mathematics, and in relevant achievement attributions among early adolescents. Participants were 255 eighth grade students (mean age 14.2 years). No significant differences were found between boys and girls in actual mathematics achievement. Significant differences were found however, in the way the two genders explain their performance. Boys tend to believe more than girls do, that their intellectual abilities are causing their high marks in mathematics. Also it was found that high achievement
could predict a positive attitude towards mathematics, but not vice-versa. These findings contradict the widespread belief that better attitudes towards mathematics lead to better performance.

Variables that demonstrate a positive impact on children's reading performance are important for both theory and practice. Historically, most empirical studies focused on the relationship between specific instructional practices and subsequent reading skills, but researchers are beginning to examine the contribution of affective factors to reading achievement (Barnett & Irwin, 1994; Lipson & Wixson, 1986; Paris, Wasik & Turner, 1991; Walberg & Tsai, 1983; 1985).

The development of positive attitudes towards reading in children produces adults who continue to engage in sustained reading throughout their lives (Cullinan, 1987). And while the relationship between attitudes towards reading and reading achievement has been well established (Alexander & Filler, 1976; McKenna & Kear, 1990; Walberg & Tsai, 1985), the causal relationship between these constructs remains unclear. Reading attitudes develop through repeated success or failure with reading activities. Students with well-developed reading skills are likely to have positive attitudes towards reading, while students with poor reading skills often have to overcome negative reading attitudes to improve their reading skills (Johnson, 1981). However, it may only be after repeated failure that attitude and achievement become more clearly linked (Swanson, 1982; 1985).

Affective factors are commonly identified as an important component in a reading curriculum (Quinn & Jadav, 1987) and teachers rank attitudes second, behind comprehension, for goals of reading instruction (Heathington & Alexander, 1984). Nevertheless, very little time is devoted to developing positive reading attitudes in the schools (Greaney, 1991).
However, the importance of affective reading development is beginning to receive more emphasis (Matthewson, 1985; 1994) and has been expanded into an integrated model that includes an attitudinal component (McKenna, 1994). This model proposes that reading attitudes develop as a result of three factors: (a) self-perceived judgments about reading outcomes, (b) self-perceived judgments about expectations of others, and (c) specific reading experiences (McKenna, Stratton, Grindler & Jenkins, 1995). This model of reading attitudes predicts a long-term cumulative process, which is formed by actual reading experiences as well as by influences from parents and teachers.

Although some theorists speculate that positive reading attitudes produce students with increased reading achievement (Bettelheim & Zelan, 1981), others contend that the causal relationship occurs in the opposite direction: from achievement to attitude (Schofield, 1980). Still others have argued (Quinn & Jadav, 1987) that despite the belief that attitude and achievement are related, no causal relationship between them exists. A similar debate, concerning attitude-achievement relationships, has been extended to mathematics (Reynolds & Walberg, 1992, a) and science (Reynolds & Walberg, 1992, b). In a structural model of high school math performance, Reynolds and Walberg (1992, a) found that motivation and home environment had the greatest indirect effects on mathematics attitudes (through the path involving prior attitude). Additionally, they found the relation between mathematics attitudes and mathematics achievement flowed from achievement to attitude rather than the reverse.

Likewise, achievement and attitude in reading do not appear to reflect a simple association, but instead are influenced by a set of direct and indirect factors (Stanovich, 1986; Walberg & Tsai, 1983; Wigfield & Guthrie, 1997), such that achievement attitudes and reading experiences appear to mutually reinforce one another with a
bidirectional influence. Similarly, using a longitudinal design, Aarnoutse and van Leeuwe (1998) found that reading comprehension, reading pleasure, and reading frequency, measured later in life, could be predicted by earlier measures of the same variables. However, reading pleasure and reading frequency were found to run automatically with reading comprehension.

Despite the controversy regarding the direction of causality, empirical findings do show that successful readers normally possess more positive reading attitudes than poor readers (Wigfield & Asher, 1984). However, not all poor readers simultaneously have poor attitudes towards reading; many maintain optimistic reading attitudes despite underdeveloped skills and increasing frustration (Russ, 1989). Empirical studies have also found a general decline in positive reading attitudes as children progress through school (Barnett & Irwin, 1994; Guthrie & Greaney, 1991; Kush & Watkins, 1996; Smith, 1990; Swanson, 1985). This pattern seems to parallel the shift in curriculum from "learning to read to reading to learn", described by Chall (1983). McKenna, Kear & Elsworth (1995) found recreational reading attitudes to steadily decrease from a relatively positive attitude in Grade-1 to a relative indifference towards reading in Grade-6. These negative attitudes towards reading are related to reading ability and found to be the most pronounced for the least skilled readers; the attitudinal gap between ability level widens with age (Kush, Watkins, & Brookhart, 2005).

The importance of recreational reading has been shown to impact reading achievement as well as attitudes towards reading (Manning & Manning, 1984).

As longitudinal studies of reading attitudes have been uncommon (e.g., Ley, Schaer & Dismukes, 1994; Smith, 1990), a longitudinal covariance modeling study was conducted by Kush, Watkins and Brookhart (2005). The aim of the study was to test the hypothesis that 3 reading-related constructs in the primary grades...
(2\textsuperscript{nd}-3\textsuperscript{rd} grade)–reading attitude, reading behaviour, and reading achievement–would predict reading achievement in the 7\textsuperscript{th} grade. Results showed that reading attitudes in primary grades were not correlated with reading achievement in the primary grades, yet both these variables had causal paths to 7\textsuperscript{th} grade reading achievement. This was described as a “temporal-interaction” model. This resulting model suggests that while reading attitude and achievement may appear unrelated at the early stages of reading, they become more closely linked over time, developing into important causal determinants of reading achievement by early adolescence.

Abu-Hilal (2000) examined the structure of attitudes towards school subjects and tested the causal relationship between attitudes, level of aspiration (goal) and achievement. 280 high school students responded to an instrument designed to measure attitudes towards four subjects (english, mathematics, science and social studies) and towards school in general. The Ss also completed standardized achievement tests in reading, writing and mathematics. Results revealed that attitudes towards school influence achievement, but only indirectly. Level of aspiration had significant direct effects on achievement and mediated between attitudes and achievement.

A few years later, Singh, Granville and Dika (2002) examined the effects of 3 school related constructs–motivation, attitude and academic engagement–on 8\textsuperscript{th} grade students’ achievement in mathematics and science. Result supported the hypothesized positive effects of motivation, attitude and academic time on mathematics and science achievement.

Attitudes held by students towards school education and teachers have been found to affect other aspects of their lives as well. Although, it has been previously established that young people who have negative attitudes towards school and education are more likely to experiment with cigarette smoking and to become regular smokers. Nutbeam and Aaro (1991) explored this relationship across
10 countries (Austria, Belgium, Finland, Hungary, Israel, Norway, Scotland, Sweden, Switzerland and Wales). The findings showed that there is a strong association between regular smoking and alienation from school, which is consistent for boys and girls in different cultures and social organizations represented by participating countries. The importance of providing a supportive school environment and identifying ways to improve the relevance of school to pupils is emphasized.

In a study by Joiner Jr. et al. (1999), 119 undergraduates (aged 17-29 years) completed questionnaires on dysfunctional attitudes, depressive and anxious cognitions and depressive symptoms before and after their midterm examinations. Consistent with the predictions of the investigators, students who were high in dysfunctional attitudes experienced increases in depressive symptoms, but only if they also received a low midterm examination grade. Students high in dysfunctional attitudes who received higher grades did not experience the increase in depressive symptoms. Similar was the case with students low in dysfunctional attitudes. It was also found that the Dysfunctional Attitudes X Midterm outcomes interaction also contributed to depressive symptoms through the operation of depressive cognitions; but not through the operation of anxious cognitions.

In a longitudinal study conducted by Cole et al. (1990) on the line between children's estimation of academic competence, gender differences, depression and anxiety. It was found that symptoms of depression and anxiety were negatively associated with overestimation of academic competence. Self-reported depression and anxiety predicated changes in the tendency to over estimate academic competence over time. A study by Cheung (2000) demonstrated a significant contribution of studying on students' life satisfaction.
From this review a fact comes to light that study attitudes and academic achievement are associated with each other. A lot of experiences and factors have a causal influence on a student's study attitudes. Negative study attitudes cast a negative shadow on a student's life which lead to many problematic behaviour patterns. Thus, attitudes held by a student towards scholastic activities and aspects of school have an effect on his/her life as a whole.

(E) Concept of Academic Achievement

The core goal of education is to ensure that each student is able to develop and make the most of his abilities and interests. Education enables an individual to analyze, comprehend and respond to the world around him in the best possible way. It assists in preparing for the personal, social and professional life that a child has ahead of him. Educated individuals constitute the part of a country's population that is aware and highly productive.

Achieving high standards is considered a power symbol and way of life. Everyone desires to attain high standards of excellence. Usually this achievement process begins with the academic attainment of a child at school. The proficiency with which an individual performs in any skill or area of knowledge is called "achievement". In education, the most essential measure of attainment is academic achievement. Academic achievement constitutes a socially desirable, equally relevant, and integral aspect of every student's life, wherein they are expected to excel in academics.

Academic achievement can be defined as "knowledge attained or skills developed in school subjects, usually designated by test scores, or by marks assigned by teachers, or by both" (Good, Barr & Scates, 1941). It can also be defined as "the attained ability or degree of competence in school tasks usually measured by standardized tests and expressed in grades or based on norms derived from a wide sampling of performance". In other words,
academic achievement is the degree of mastery in certain areas of study, attained in a prescribed time, and measured either by standardized tests or by teacher made tests.

Throughout the world, academic achievement is assessed in a variety of ways such as, the grade point average (GPA), performance on standardized tests as the Stanford Achievement Test (SAT), the Science Research Associates Test (SRA), and scores on essay type examinations. Here, academic achievement is the mean achievement score in the examination of each course i.e., the curriculum taught by the teacher.

These tests which are a direct measure of school subjects are very significant in the education process. Items take on very different appearances in different types of tests i.e., true-false, multiple choice, identification, short notes type answers, problems and many others. Essay-type and objective-type items constitute the backbone of most tests, used for assessing academic success.

The essay-type test, as opposed to the objective-type, allows relative freedom of responses to a given problem, but at the same time requires the student to recall rather than recognize information and to organize and express his/her ideas clearly and concisely. These tests also include the skills of logical consistency of answers, organizing ideas, remembering details, discriminating between the essential and the non-essential facts, fast thinking during examinations, originality, accuracy of answers or the ability to figure out the correct answer and the capability to learn difficult course content.

As is true for an objective test, the strength of an essay test depends on how well it measures attainment of instructional objectives. Of significance is the fact that in giving the essay tests the teacher indicates to students the importance of being able to express themselves in writing.
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The objective examination is so-called because the scoring procedure can be completely stated in advance of testing. On each item the student either tries to select the correct answer from a prescribed list, or respond to a statement as 'true' or 'false', or supply the one term, name, or date that answers the query. Such examinations are objective only in the sense that the rules for scoring are absolutely clear, rather than somewhat subjective as is the case with an essay-type examination.

Examinations generally conducted in the Indian schools fall into the essay-type tests and the achievement is expressed in marks secured in the annual examination in aggregate in various school courses i.e., English, Hindi, Mathematics, Science and Social Studies. Total academic achievement scores is an outcome of the achievement of a simple as well as of a complex nature. Consequently total achievement involves a multiplicity of skills and habits (Gaudry & Fitzgerald, 1971).

As far as the learning of language is concerned, especially English, it is considered comparatively difficult. This is due to some of it's technicalities, such as learning of grammar, spirit of words and above all, unfamiliarity with the vocabulary. Acquisition of the mother tongue is considered simpler than that of a foreign language, although the processes involved in the acquisition of language skills are, more or less, the same. Further, in general, a course in Social Studies is perceived as less threatening and less difficult, more meaningful and more interesting as it relates to the immediate physical and mental environment of the student. The courses in Mathematics and Science are considered as difficult courses since many perceive them for their worth as technical courses which lead to the type of professional courses valued in the Indian context. Another reason why Science and Mathematics are considered difficult is because they involve mechanical and arithmetic reasoning.
From the point that a child is inducted into the process of formal education, stress is laid upon him or her to achieve a certain standard in academics. The level of achievement that a student attains acts as a benchmark which points towards the avenues of progress open for him/her. From a student's perspective, academic achievement symbolizes an effort to overcome academic challenges and surpassing others by attaining high standards through an optimum use of their talents and abilities. It offers students a stepwise progression from one stage of education to another.

The assessment of academic achievement attains numerous goals. For instance, a student's current scholastic status may be highlighted by examining his past record. Excellence or underachievement can be indicative of gender differences. It is a decisive factor in promotion to the next grade or retention in the same grade. It acts as a criterion for admission into higher education. It illuminates a child's strengths or weaknesses in a particular areas or subject. In an overpopulated country like India (1 billion plus) academic achievement takes a whole new meaning. Due to limited seats in prestigious schools, colleges, technical institutions, universities as well as in careers, a major criterion for induction is high achievement in prior courses. In other words, academic achievement is the pivot on which the future of an individual revolves and rests.

Academic excellence does not just have educational and professional benefits for an individual, but also psychosocial benefits. Studies have related high academic achievement to self-esteem, positive affect, prosocial behaviour and popularity among peers (Crocker et al., 2003; Keung, 2003; Bal, 1974; Winnykamen & Aussedat, 1975). It has been a long quest of educators and psychologists to study what influences high achievement and why many fail to achieve.
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(F) Academic Achievement

The previous two reviews considered study habits and study attitudes and their influence on academic achievement. This review will dwell upon other factors which influence academic achievement; the benefits of high academic achievement; and the ill effects of academic underachievement. The most generally recognized factors influencing academic achievement are: interest (positive attitude), motivation, personality, study habits, school, home and family, peer-group, and socioeconomic status (Mohan, 1974).

Over the years, a number of studies have found that high achievement motivation leads to academic success. Atkinson and Litwin (1960) reported that achievement motivation has a significant relationship with academic achievement. Tamlankar (1968) conducted a study on the achievement motivation of adolescent boys, which indicated a positive relationship between achievement motivation, personal values, socioeconomic status, intelligence, and academic achievement. Dave (1975) found that there is a positive relationship between need for achievement and performance. Phutale (1976) has found achievement motivation as one of the most significant predictors of academic achievement.

Desai (1971) conducted a study of achievement motivation in high school pupils which revealed that educational performance has a positive correlation with academic motivation. Later, Sinha and Sharma (1975) found that the academic motivation of high achievers was higher than that of low achievers. Aggarwal and Krishna (1976) have found that high achievers score higher on academic motivation and tend to exhibit a significant and positive association with academic achievement. Shivarathanamma (1981) found correlations in the range of .15 to .20 between academic motivation and academic achievement. Gottfried, Fleming and Gottfried (1994) found that academic motivation significantly and directly influences academic achievement. Shulamith et al. (1996) examined the roles of and
motivational factors in scholastic achievement. These investigators found that motivational factors contribute towards the scholastic attainment of students.

In a study by Broussard and Garrison (2004) the relationship between classroom motivation and academic achievement in young elementary school aged children was examined. The participants were 122 Grade-1, and 129 Grade-3 children. The findings of this study were consistent with previous research in that higher level of mastery motivation and judgment motivation were found to be related to higher mathematics and reading achievement in third graders. However, higher levels of mastery motivation, not judgment motivation were related to higher mathematics and reading achievement in first graders.

Considerable amount of research has been conducted in terms of examining the relationship between intelligence and academic achievement. Results from a study by Orme (1975) show that intelligence is a major determinant of school achievement. This study was conducted among 112, 11-year old elementary school children. In an experimental investigation, Lunge (1974) studied the relationship between performance on the Raven’s Progressive Matrices Test and school achievement among 1,059, 7 to 19 year old students. Achievement in mathematics and the Raven’s Test yielded the highest correlations. This investigator suggested the use of the Raven’s Progressive Matrices to determine whether the student’s academic performance reflects their intellectual ability or not.

The relationship between cognitive abilities and academic achievement is widely recognized (e.g., McArdle & Woodcock, 1998) and has a long history in which researchers have tried to identify the links between cognition and achievement. In some instances ability and achievement are seen as parts of the same dimension (Snow, 1998). According to Cattell (1987), however, fluid intelligence acts to produce school achievement. On the basis of this assumption, Cattell and Butcher (1968) studied the contribution of different ability factors to scholastic achievement. As expected by the investigators, verbal scores were most predictive of verbal achievement (i.e. word meaning and paragraph meaning), whereas number scores were most predictive of arithmetic achievement (i.e. arithmetic comprehension and arithmetic reasoning). Scores from measures of spatial ability and reasoning, however, were not highly predictive of any aspect of academic achievement.

Scholastic achievement is an important component of fluid (Gf) and crystallized (Gc) intelligence theory. According to this theory, the investment of fluid abilities into crystallized abilities occurs extensively during the schooling years, times when individuals acquire the complex abilities needed to learn school activities such as reading, writing, and arithmetic. Scholastic achievement, thus, is strongly related to both Gf and Gc (Cattell, 1941, 1943, 1957, 1963, 1971, 1987; Horn & Cattell, 1966, 1967).

Major components of scholastic achievement in Gf-Gc theory are reading, writing, and arithmetic, with emphasis also on social studies. This conceptualization is similar to Gustafsson and Balke's (1993) clustering of achievement dimensions or the classification of achievement factors included in psycho-educational batteries such as the Woodcock-Johnson Psycho-Educational Battery-Revised (WJ-R; Woodcock & Johnson, 1989-1990). Based on the Gf-Gc theory, the WJ-R recognizes the link between cognition and achievement, the former assumed to bring about the latter. Such a conceptualization
implies that measures of cognitive abilities have a predictive value for academic achievement.

Research using WJ-R and WJ-III (Woodcock-Johnson Psycho-Educational Battery-Third Edition; Woodcock, McGrew & Mather, 2001) data, has provided evidence for the predictive value of cognitive abilities for achievement, with specific sources predicting different forms of achievement (Evans, Floyd, McGrew & Leforgee, 2002; Floyd, Evans & McGrew, 2003; McGrew, Werder & Woodcock, 1991; Vanderwood, 1997; Vanderwood et al., 2001). Findings of a study by Ferrer and McArdle (2004) indicate that fluid ability was a leading indicator of changes in achievement measures (i.e. quantitative ability and general academic knowledge).

As there has been considerable debate regarding the causal precedence of intelligence and academic achievement, a recent study by Watkins et al. (2007) addressed this debate with a cross-lagged panel analysis of WISC-III (Wechsler Intelligence Scale for Children-Third Edition; Wechsler, 1991) and achievement test scores of 289 students who were assessed for special education eligibility with a test-retest interval of 2.8 years. The optimal IQ-achievement model reflected the causal precedence of IQ on achievement. In other words, the paths from IQ scores at time 1 to IQ and achievement scores at time 2 were significant whereas the paths from achievement scores at time 1 to IQ scores at time 2 were not significant. These findings suggest that psychometric IQ has a causal influence on future achievement measures, whereas, achievement measures do not substantially influence future IQ scores. These findings give weight to Parker and Benedict's (2002) assumption of intelligence tests are thought to measure general reasoning skills that are predictive of academic achievement.

Varied aspects of an individual's personality have been found to influence academic achievement. Barton, Bartsch and Cattell (1974) treated achievement scores of over 300 students from Grades-
6 and 7 as dependent variables and their scores on various personality scales as independent variables, and performed analysis of variance. Results indicated several significant main effects and interactions, but perhaps most important was the finding that extreme scores on either end of the extraversion or anxiety dimensions were related to high achievement. Tinajero and Páromos (1998) reviewed research into the possible repercussions of field dependence-independence (FDI) on achievement at school. They found that, in general, field-independent Ss' perform better than field-dependent Ss', whether assessment is of specific disciplines or across the board.

Results of a study by Gumora and Arsenio (2002) indicated that although students' emotion regulation, general affective dispositions, and academic affect were related to each other, each of these variables also made a unique and significant contribution to students' grade point average, over and above the influence of other cognitive contributors.

One new area of recent interest has been the impact of social and emotional competency on academic achievement. Early discussions on the relationship between Emotional Intelligence (EI) and achievement in various educational contexts were quick to claim a strong association (e.g., Elias, Bruene-Butler, Blum & Schuyler, 1997; Goleman, 1995; Pasi, 1997). As more recent writers have noted, however, these early claims were made largely on the basis of very preliminary data (see Matthews, Roberts & Zeidner, 2003; Zeidner, Roberts & Matthews, 2002). Although many educators were quick off the mark to develop or adapt intervention programmes for EI (e.g. Elias et al., 1997), little was known about the efficacy of these types of interventions (Mayer & Cobb, 2000). Even less was known about how EI could be assessed using reliable and valid measures (Zeidner, Matthews & Roberts, 2001).
Recently, a small body of empirical evidence has emerged to suggest that there is merit to the idea that EI is associated with academic achievement—as long as careful attention is directed at the methodology for assessing EI and achievement variables (Parker, Summerfeldt, Hogan & Majeski, 2004). Petrides, Frenderickson and Furnham (2004) examined the relationships among EI, cognitive ability, and academic performance in a British sample of 650, Grade-11 students. They found that EI moderated the relationship between academic performance and cognitive ability. In a longitudinal study examining the transition from high school to university, various dimensions of EI (intrapersonal abilities, adaptability and stress management) were predictors of academic success (Parker, Summerfeldt, Hogan & Majeski, 2004). A study which examined the relationship between emotional intelligence and academic achievement in high school students also found that academic success was strongly associated with several dimensions of emotional intelligence (Parker, Creque Sr., Barnhart, Harris, Majeski, Wood, Bond & Hogan, 2004).

Although individuals classified as Type As have been found to be more vulnerable to heart disease and other related health problems, they do exhibit better academic and occupational performance (e.g. Glass, 1977; Matthews, Helmreich, Beane & Lucker, 1980) than those classified as Type Bs. In a factor analytic study by Pred, Helmreich & Spence (1987) in which college students were administered the student form of the Jenkins Activity Scale (Jenkins, Zyzanski & Rosenman, 1971), a commonly used measure of the Type A pattern. Two relatively independent factors emerged, which the investigators identified as Impatience and Irritability (II) and Achievement Strivings (AS). Spence, Helmreich and Pred (1987) subsequently found that students' scores on the AS factor scale, whose items inquired about the respondents activity level; how seriously they took their work; and the amount of effort that they put into their work, were significantly related to grade point average.
Robins et al. (1996) identified three replicable personality types (resilient, overcontrolled and undercontrolled) in a sample of 300 adolescent boys. These personality types had conceptually coherent relations with the Big Five dimensions, ego resiliency, and ego control, and converged with three of the types identified by Block (1971). The behavioural implications of the types were explored using several independent data sources. Resilients were intelligent, successful in school, unlikely to be delinquents, and relatively free of psychopathology. Overcontrollers shared some of these characteristics but were also prone to internalizing problems. Undercontrollers showed a general pattern of academic, behavioural and emotional problems.

Different aspects of the school i.e., size, environment, staff, etc. have been found to influence students' academic performance. Tuck (1974) studied the relative importance of ability, social class, sex and type of school on the performance of children in the education system of England and Wales. Findings showed that reorganization of the educational institution can have considerable effect on children's performance, irrespective of their social class, and intelligence. He also found that sex plays an important determining role as pupils progress through the system.

McPartland and Epstein (1975) reported results from a survey of 6,185 students in 23 elementary, 10 middle, and 6 high schools of a suburban Maryland school district where schools vary significantly in the authority systems of the classrooms at each grade level. Analysis of the relationship between "openness" of a school's instructional programme and student achievement did not show a consistent pattern across 4 elementary and secondary grades. In every case, however, there was a large School Openness X Family Background interaction effect on achievement. Students from the
higher social class categories showed a more positive relationship between school openness and achievement than did students from the lower social classes. In grades where the overall relationship was positive, the more advantaged students were more strongly positive; where the overall relationship was negative, the higher social class group was least negative, and where the overall relationship was not significant, the higher social class group tended towards a positive relationship.

Bosker (1997) reviewed international studies on the effects of class size on the functioning of teachers and students. They reported that Grade-2 students in classes with more than 25 students were more likely to be underachievers than comparable students from smaller classes. For Grades-4, 6 and 8 the results show a relatively high level of overachievement for arithmetic in classes sized 30-34, but also indicate that class sizes of 35 and above will be detrimental to student achievement. They concluded that teacher-to-pupil ratio rather than class size by itself may have a more profound effect on student achievement.

Barth et al. (2004) examined concurrent and longitudinal effects of classroom and school environments' on individual behaviours for students in 65 classrooms at 17 schools. This study was based upon the assumptions that classrooms containing high numbers of students with poor academic skills or behaviour problems are likely to promote these behaviours in individual students. They found that poor classroom environments were associated with student aggression, and poor levels of peer relations and academic focus. It was concluded that changes in student behaviour over time could be explained by the current classroom environment.

In an early study by Matsuda (1973) 3 arithmetic teachers with different amounts of teaching experience taught 3 different classes of 4th graders the same unit of subject matter. Teacher-pupil
interaction was classified according to its duration and frequency. The pre- and post-test scores of pupil achievement were compared. It was found that the teacher with the longest experience used the teacher-centered approach, spent more time in individualized instruction and the pupils of this teacher scored highest on the post-test.

Research has revealed that father's absence from home, family size, parental alcohol abuse, low level of parental involvement in their children's education process predict low achievement in students. But these variables, when present in their positive form predict high achievement in children (e.g., Sciarra, 1975; Fogelman, 1975; Georgiou, 1999; Casa-Gill & Navarro-Guzman, 2002; Anchor & Anchor, 1974; Gonzalez-Pienda et al., 2002; Hill & Taylor, 2004; Barwegen et al., 2004).

In a recent 2-year longitudinal study, Wentzel, Barry and Caldwell (2004) examined relations of having a reciprocated friend and the characteristics of a reciprocated friend to students' social and academic adjustment in middle school. With respect to having a friend, 6th grade students without friends showed lower levels of prosocial behaviour and academic achievement and showed emotional distress than did students with reciprocated friendships. Not having a friend in 6th grade was also related to emotional distress 2 years later. Also reported was that friends' prosocial behaviour predicted changes in individuals' prosocial behaviour in 8th grade by way of changes in goals to behave prosocially. A study by Crosnoe and Elder Jr. (2004) found that close relationships with teachers and involvement with friends protect against parent-related academic risks among Asian adolescents.

The idea of a new construct called academic enablers evolved from the work of researchers (e.g., Gresham & Elliott, 1990; Malecki, 1998; Wentzel, 1993; Wigfield & Karpathian, 1991) who explored the relationship between students' non-academic
behaviours (e.g., social skills, motivation) and their academic achievement. Based on this earlier research, it was hypothesized that a student’s academic success— or competence—in the classroom required more than academic skill proficiency. Specifically, academic competence has been defined as a multidimensional construct consisting of the skills, attitudes and behaviours of students that contribute to success in the classroom (DiPerna & Elliott, 2002). While exploring this construct, DiPerna and Elliott (1999; 2000) indicated that the skills, attitudes, and behaviours contributing to academic competence fall into one of the two domains: academic skills or academic enablers. Academic skills are "the basic and complex skills that are the primary focus of academic instruction in elementary and secondary schools". In contrast, they defined academic enablers as "attitudes and behaviours that allow a student to participate in, and ultimately benefit from, academic instruction in the classroom".

Through a variety of means (e.g., review of research literature, discussions with educators, empirical research), these investigators identified specific domains of academic skills and academic enablers that contribute to academic competence. Specifically, the academic skills domain includes language-based skills (reading the writing), mathematics and critical thinking (DiPerna & Elliott, 2000). The academic enablers include interpersonal skills, motivation, study skills, and engagement (DiPerna & Elliott, 1999; 2000). Subsequent research (e.g., Malecki & Elliott, 2002; DiPerna, Volpe & Elliott, 2002; Elliott et al., 2004) supports the construct of academic enablers.

Some research has been conducted on the benefits that an individual receives from attaining high academic achievement. These include popularity among peers (Bal, 1974); positive judgement of success in general tasks (Winnykamen & Aussedat, 1975); prosocial behaviour (Keung, 2003); perceptions of social competence, being
preferred by peers, positive peer nominations, global self-worth, and self-perceptions of scholastic performance (Nowicki, 2003).

As there are benefits of achieving high in academics, the other side of the same coin reveal some present as well as future ill effects of underachievement. Drug use has been found to be significantly associated with underachievement (Hemminki, Rissanau & Mattila, 1973; Lawrence & Velleman, 1974; Smith & Fogg, 1974; Guinn, 1975). Cigarette smoking (Simon & Primavera, 1976; Griffin et. al., 1999) and alcohol abuse (Wood, Sher & McGowan, 2000; Casswell, Pledger & Hooper, 2003) have also been found to be associated with academic underachievement.

Riala et al. (2003) examined the relationship between drunken driving offences, school performance and adult educational achievement. Ss' in this investigation were studied prospectively covering the period from pregnancy to the age of 31 years. It was found that drunk drivers had a significantly worse school performance as compared to control Ss'. Males who had remained at the basic educational level had an elevated risk for drunk driving. These investigators concluded that their results were unlikely to be directly causal; however, educational failures seem to be a part of the complex causal pathway to drunk driving and even to alcohol related disorders.

Jeynes (2002) assessed the relationship between adolescent patterns of consumption of marijuana, cocaine, alcohol and cigarette consumption and academic achievement among 18,726 students. The results indicated that increased frequency of cigarette smoking and being under the influence of marijuana, cocaine and alcohol frequently had a negative impact on adolescent academic achievement. Thus, it can be concluded that using drugs, alcohol and smoking cigarettes and academic achievement have a two way relationship.
In a study by Diego, Field and Sanders (2003) among 89 high school seniors who completed a questionnaire on their feelings and activities, including their use of drugs. Results indicated that adolescents with a low grade point average, high popularity, and high depression were more likely to smoke cigarettes, drink alcohol, and smoke marijuana than were their peers. Cigarette smoking and alcohol use predicted marijuana use, which in turn predicted cocaine use.

From this literature, it becomes clear that it is very essential to devise intervention programmes to assist underachievers improve their performance in academics. This is necessary as otherwise we leave them in a very risky situation which will lead to many unfortunate results.

(G) Enhancing Study Skills

The previous reviews point out the fact that study skills (study habits and study attitudes) affect a student's academic achievement. Also highlighted was the evidence that academic achievement is affected by a number of other variables. High academic achievement leads to a number of benefits, whereas poor achievement carries with it a lot of negative effects which sooner or later lead to the downfall of an individual in every area of his or her life. Some form of intervention is needed to enhance the study habits and study attitudes to improve the academic achievement of underachievers. Some studies have taken this course of action to improve academic achievement (e.g., Beidel, Turner & Taylor-Ferreira, 1999; Harris & Trujillo, 1975; Lapan, Kardash & Turner, 2002; Wade & Moore, 1998; Mackay, 1999; Vaughan, 2002).

Harris and Sherman (1974) conducted a study among 77 Grade-6 students. Subjects who used to incorrectly answer questions in class were given daily homework assignments in social studies and mathematics. Results revealed that the accuracy with which these assignments were completed was associated with more accurate
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classroom performance. Wang and Stiles (1974) investigated the effectiveness of an instructional-learning management system (the Self-Schedule System). This system was inducted with the purpose of promoting self-responsibility among 2nd graders. They were taught how to manage their school learning. Particularly the ability to influence their own learning environment and outcomes was taught. Results revealed that the Self-Schedule System was effective in developing the Ss' concept of self-responsibility. In addition, Ss' started believing that they had more control over their classroom behaviours and learning outcomes. This made them more responsible. The findings also indicated that when Ss' were given the opportunity to be responsible for their learning, they accomplished more.

In an investigation by Harris and Trujillo (1975), low achieving junior high school students were divided into 3 groups i.e., a self-management approach group (n = 36); a group discussion technique group (n = 41) and a no treatment group (n=36). The self-management approach group was taught the principle of behaviour modification and self-control. The group discussion technique group were involved in a discussion of study habits and problems. Ss' in both the treatment groups reported improvement in their academic abilities. The Ss' in the self-management group reported that they had a specific time and place for study and that the programme had helped in increasing their efficiency and time spent on studies.

Harris and Johnson (1980) assessed the comparative efficacy of three treatment conditions. These were individualized covert modeling combined with study skills training; self-control desensitization combined with study skills training; and study skills training alone. The study training programme in this study incorporated a number of self-management techniques, including self-monitoring, systematically studying in the same place and at the same time, scheduling study time to avoid interruptions, and so on.
Students were taught good note taking techniques and how to study using the SQ3R method developed by Robinson (1961). Forty eight test anxious students were randomly assigned to one of the three treatment conditions or to a waiting list control group. All treatment groups met for eight, 1-hour sessions. At post-test, all treatment groups were significantly better than waiting list control subjects on one or more of the dependent variables employed. However, the individualized covert modeling group was the only treatment group that showed significant improvement in academic performance.

Sapp (1994) investigated the effects of a counseling programme on improving the academic self-concept and achievement of African-American middle school students who were academically at-risk. This programme also included a modified form of Harris and Johnson's (1980) study skills counseling session. The results indicated that this programme helped improve academic achievement of the subjects. Their school attendance improved and their tardiness decreased. There was also an improvement in the academic self-concept as well as self-esteem of these at-risk middle school students. Treatment gains were found to be maintained at a 4-week follow-up.

Reynolds (1998) used prospective and longitudinal data to investigate scholastic and social resilience in 1,170 low-income Black 12-year olds. These students had experienced multiple risk factors associated with school underachievement, and had also participated in an early childhood intervention from pre-school to 2nd or 3rd grade. Resilience was defined in this study as “competence in the scholastic and social domains through academic performance and through teacher ratings”. Participation in early childhood intervention was significantly related to both of the resilience outcomes. Academic achievement in the 3rd grade as well as parental expectations of educational attainment consistently predicted resilience.
Arnold et al. (1999) presented a research programme that promotes academic success and engagement and also prevents disruptive behaviour disorders in two ways. First, parents and teachers are taught to engage in literacy activities that enhance children’s skills directly and indirectly. Second, parents and teachers learn how to minimize children’s behaviour problems. The following tenets guided their work: (1) policy should emphasize prevention programmes; (2) lasting benefits are more likely when programmes promote development in multiple areas, and are coordinated to include both family and school; (3) interventions must be practical and attractive to those using them; (4) policy should be influenced by community input; and (5) lasting implementation of a programme depends on active community involvement. These authors argue that each of these tenets are supported by research and are generally accepted. However, these are rarely implemented. They concluded that taking a broader perspective on children’s problems should lead to better understanding to patterns of failure and success, as well as improved programmes for youth.

Ting, Grant and Plenert (2000) examined the effects of a structured group approach which integrated study skills and psychosocial variables on academic performance of 1st-year college students. 22, 1st-year college students participated in the Excellence-Commitment-and-Effective-Learning (ExCEL) programme. This programme used structural exercises, readings, assignments, and contracts to enhance students’ performance. 26 matching controls supplied comparative data. Results showed that after completing the ExCEL programme, Ss’ performed better in concentration, information processing, selecting main ideas, and test skills. Participants also showed higher retention rates and better grade point averages after their 1st-year. The control group Ss’ did not show that much improvement. The participants also reported enhanced psychosocial development including improved time-management skills and increased self-knowledge. These
investigators concluded that integrating cognitive and psychosocial variables has a positive effect on 1st-year college students' performance.

Bradley-Klug and Shapiro (2003) pointed out that student achievement has traditionally been used as a product of a student's ability as well as the quality of teaching, schools, and of the home environment. However, over the past two decades, researchers and educators are viewing self-regulated learning strategies as essentials to academic success. Self-regulated activities are a student's ability to control his or her behaviour, allowing the student to apply specific strategies and evaluate his or her performance on specific learning tasks. Cognitive-Behavioural techniques can be effective in improving the self-regulatory behaviour of students.

Skinner, Williams and Neddenriep (2004) have stated that group-oriented contingencies have proved to be the best out of all the interventions designed to reduce inappropriate behaviours in public schools. However, such procedures may be underutilized for enhancing academic performance and learning. These authors have described how interdependent group-oriented reward procedures can successfully be used to enhance students' academic performance.

In a recent study by Campbell and Brigman (2005) the impact of a group counseling intervention on students' academic and social performance was assessed. 25 school counselors were trained to use a structured approach for small groups. This approach was designed for students who were scoring in the mid-to-low range in mathematics and reading. 240 students participated in this "Student Success Skills" group counseling programme. An equal number of comparison students were also selected. Students in both the treatment and comparison groups had scored between the 25th and 60th percentile in mathematics and reading on the previous year's Florida Comprehensive Achievement Test (FCAT). The group intervention focused on improving student achievement and student
success skills. Results indicated gains in reading and mathematics achievement scores. There was also an improvement in teacher rated behaviour related to student success skills.

Wade and Moore (1998) studied the effects of a reading intervention programme called Reading Recovery. This programme was developed to help elementary school children who made the least progress in their classes at the end of their first year in elementary school. 121 ex-Reading Recovery students from Australia and New Zealand were compared with 121 students with similar primary educational experiences. Ss' were assessed on comprehension and reading performance as well as on their attitudes towards reading. The ex-Reading Recovery students were significantly superior than the comparison group on all the aspects assessed. These results indicated that Reading Recovery would probably be effective in the longer run as well.

In an investigation by Mackay (1999), two experimental groups and a control group were selected from a school in an area of social disadvantage. All three groups were matched for age, cognitive ability and reading level. Each group consisted of 8 primary school students who had severe reading difficulties. One experimental group was subjected to a 10-week intervention that was based on changing students' attitudes and values regarding education and the relevance of reading. The other group followed a paired reading programme in addition to the 10-week intervention. Both experimental groups achieved significant gains in their reading scores compared to controls. In addition to these gains, there were reported improvements in other areas such as behaviour in school. The attitude change of the experimental subjects was also significant.

Vaughan (2002) examined the effects of co-operative learning on mathematics achievement and attitudes towards mathematics for a group of 21, Grade-5 students. Results reported that there were
positive gains in the attitudes towards mathematics and achievement in mathematics among these students.

At present, professional school counselors are continually facing the rising demands for individual counseling of students (Myrick, 1993; Snyder & Daly, 1993). Apart from this school counselors have to coordinate comprehensive guidance services. They have to consult with parents and educators on various issues. On top of that they are required to provide small-group counseling and classroom guidance. With so much to do time for individual counseling becomes limited (Borders & Drury, 1992). Drawing from previous research (e.g., Watzlawick et al., 1974; de Shazer, 1985; Amatea & Sherrard, 1991; Steenbarger, 1992), Bruce (1995) presented the Brief Counseling Model as an effective tool for counselors who have constrictions of time.

Littrell, Malia and Vanderwood (1995) conducted a naturalistic study in which they investigated three approaches to brief counseling. These were: (i) problem-focused with task; (ii) problem-focused without task; and (iii) solution-focused with task. Quantitative and qualitative measures were used to explore aspects of single-session brief-counseling. Subjects made significant improvements in alleviating their concerns about problem situations and increasing the percentage of goals achieved. Subjects also dramatically decreased the intensity of undesired feelings. The solution-focused counseling was as effective as the other two approaches but took less time.

The purpose of a study by Newsome (2004) was to evaluate the impact of Solution-Focused Brief Therapy on school attendance and academic achievement. 26 students received the intervention and were compared with 26 students who did not receive the intervention. The academic achievement of the students in the treatment group increased significantly from pre-treatment to post-
treatment. Ironically, no differences were found between the two groups on attendance.

From this review it becomes clear that intervention does help in enhancing study habits and study attitudes of underachievers, which in turn helps increase their academic achievement. In the present study, the investigator has returned to a more basic experimental work. One aspect of this strategic intervention programme will be Economy in Learning Techniques which includes methods of Regular Study Scheduling, Part Learning as well as Distributed Learning. These methods will assist students to imbibe their study material better. The other part of the intervention will be the Problem Solving Strategy (Nezu et al., 1989), a form of Cognitive Behaviour Therapy. The Problem Solving Strategy will be used as an endeavour to introduce students to effective study habits and to remove the mental blocks, which are proving detrimental to their academics.