CHAPTER-II
REVIEW OF THE RELATED LITERATURE:

The chapter in hand aims at making appraisal the literature on alienation, academic performances and attitudes towards energy education. The comprehensive information regarding these variables has been provided here. The review of literature provides relevant ideas, explanations and hypothesis and also suggests methods, techniques and tools for the benefit of the researcher which can be used for collecting and analyzing the results. The earlier researcheres have directly or indirectly related to the present study and have shown a path into which this researcher has moved.

All the literature available with best efforts of the researcher, have been categorized is the following way:

(1) Studies Related to:

(a) Alienation at Elementary Level.
(b) Alienation at Secondary Level.
(c) Alienation at Higher Level.
(d) Alienation and School Environment.
(e) Alienation: its dimensions.
(f) Alienation with other factors.
(g) Alienation in e-learning environment.

(2) Studies related to Energy Education.

(a) Alienation at Elementary Level:

Alienation in students has been studied at elementary school level. Some researchers studied alienation in relation to socio-economic status, student attributes and the activeness of mothers. Some of the
researchers were conducted how the level of alienation could be reduced while some showed the effect of following the level of alienation. The school climate of bureaucratization and depersonalization have been found to generate the feeling of separation by Anderson (1973).

Stuart (1969) has examined in his study the conditions and resultant state of alienation in public elementary schools. He asserts that the institutional "press", bureaucratization and depersonalization generate in the students feelings of separation from themselves, feelings of separation from others and feelings of separation from nature. These conditions, then, produce in the students responses such as conformity, withdrawal, rebellion beating the system etc. He also makes a recommendation for reducing curriculum to provide opportunities for students to understand the nature of alienation and ways of changing alienating conditions.

In a study efforts were made to determine the effect of change in alienated children's feelings about themselves class room behavior and school attendance resulting from this intervention process. It was concluded by Fortune (1976) that multidimensional elementary school counseling did have a positive effect on the self concepts and class room behavior of alienated elementary school children. The nature of the change for the control group on the Devereux Scale revolved around a response to the controlling efforts in the school: Reduced class room disturbances, disrespect-defiance and external blame. This change for the treatment group indicated increased involvement both academically and with people: Increased comprehension, creative initiative and need closeness to teacher while reduced external reliance and inattentive withdrawn behavior. The latter types of behavior are interpreted to be incongruent with alienation.
Black mothers' alienation and participations in the educational sector were studied by Winters (1976). He wanted to see if urban mothers who are active participants in their children's schools feel less alienated than mothers who are less active or inactive.

Alienation was measured in terms of three components of subjective alienation. A highly significant negative association was found to exist between mothers who had been active participants in their school and their alienation.

Ignacio (1969) found the relationship between acculturation, achievement, teacher expectations and the alienation of Spanish American students. The following conclusions were drawn from the results of the study: (1) The educational alienation of Spanish American students in the sample is significantly related to their level of achievement, (2) the educational alienation of Spanish American students in the sample is significantly related to their level of acculturation, (3) the educational alienation of the urban lower class subjects of the sample is significantly related to their teacher's expectations, (4) the educational alienation of the students in the sample is significantly related to their socio-economic status.

At elementary level the intimacy among teachers was found related to student alienation. It was observed by Peled (1976) Teachers spirit and students' sense of Powerlessness were also found to be correlated with significant negative coefficients between the two. The study also revealed negative relationship between Principals' consideration of teachers' principals thrust and students' sense of powerlessness. Significant positive relationships were found between Principals' ago and student alienation.
Abolfotouh (1971) however did not find any positive or negative relationship between student attributes and their attitudinal variable of alienation. It was concluded in this study that the intellectual functioning at the basic level is not associated with alienation.

Curran's (1976) study indicated the importance of organizational participations in reducing the level of alienation. He showed that parents who were active showed low alienation in their children of public elementary community and non-community schools. In order to reduce alienation level of students certain programmes were developed and used. Some of them have proved to be effective in reducing student alienation. Brand (1976) has reported a study in which to achieve this purpose. It was revealed that the programme had no significant effect on any dimension of alienation.

(b) Alienation at Secondary Level:

Student alienation may occur at any grade level and can have an effect on any of their behavior. The effects of alienation can dampen the student's spirit towards learning and if not checked, it may be the major cause of the student-withdrawing or "dropping out" of school. Alienation at secondary level has been studied by several researchers. Some of them studied alienation in classroom while others related it to organizational climate of the school, attendance, self-concept of academic ability, morale, reasoning, family background etc.

Metzger (1981) in his study investigated the degree alienation in students of eleventh grade of different sizes of schools. He found that there were no significant differences at the .05 level in the three groups of schools in general. Powerlessness existed in both large and small high schools;
and self estrangement was found in some of the moderate-size high schools. The reasons for these difference were not, however, explored.

Self-concept of academic ability, school attendance and student alienation were found related together in the study made by Preiss (1976). In this study Dean’s Scale of Alienation was used. It was concluded in this study that alienation was present in the student population of non-urban high schools.

The focus of the study conducted by Magnani (1976) was to provide an understanding of the relationship between alienation and education and to demonstrate that the Ashland Educational community centre reduced the alienation caused by undemocratic organizations of the systems. The study demonstrated that the undemocratic political-economic structure of the United State exerted great pressures on public schools to produce an alienation labour force. Some studies have tried to understand the atmosphere of the school and the student’s sense of involvement in identification with the school as important factors in the students educational growth and development. It was concluded by Heath (1970) while he was studying student alienation in schools.

Some researchers have been made to reduce alienation at the secondary level. Some of them showed the significant results while others came out with not significant results. Gillespie (1977) developed a three week mini-programe for ninth grade students in psychology for helping others. The programme was tried and it was found that psychological education could be of help in reducing alienation in students.

In a study made by Moye (1976) Orientation of teachers was found to be related to alienation of students in related secondary schools.
It was found that custodialism on the part of the teachers was negatively related to their total alienation. Adolescents face the increasingly difficult task of making a success of themselves both at school and afterwards. Whilst almost eighty percent of students interviewed in the recent WA Child Health Survey (Zubrick, et al., 1997) said that they liked school, even if only "a little", one in five said they disliked or hated it. And although governments wish to encourage students to stay on till year 12, thirty percent leave before then, and about a third of those leave before completing their ten years of compulsory schooling (Dwyer, 1996).

The alienation of adolescents in schools has been discussed in the literature over the last three decades, and has variously been described as students exhibiting poor attendance, failure, feeling a lack of control over their own situation, being unable to keep class or school rules, not having a sense of belonging, or a combination of any of these (Carlson, 1995; Mau, 1992). Alienation has been associated with disruptive behavior (Zubrick, et al., 1997), absenteeism (Reid, 1981), and dropping out (Whealage and Rutter, 1986). The issue of adolescent alienation is one that concerns many administrators, teachers and school pastoral staff and is a continuing and frustrating problem (Morton, 1989).

With record levels of youth unemployment, many adolescents who leave school and who have been alienated often become adults who are socially alienated, live in poverty and are politically powerless (Dwyer, 1996; Rohrman, 1993). Schools need to find alternative solutions, rather than allowing these students to fall through the gaps in our educational network. This article contributes to the understanding of adolescent alienation by examining some underlying theoretical constructs associated with the
global concept of alienation. Greater understanding of the constructs enables educators to explore the issue of adolescent alienation in schools within a conceptual framework derived from the literature and leads to evaluation of interventions that have been tried with alienated adolescents in junior high schools both in Australia and overseas.

(c) Alienation at Higher Level:

Student unrest in institutions of higher learning is no new phenomenon. However, in recent years, it has assumed unusually destructive form. Not only college faculties and administrators but responsible social circles in society at large have become concerned with it. Social scientists have described these college students as alienated and the social situations that have resulted from their acts of civil disobedience as anomie.

In a study Romeo (1975) found that counseling and psychotherapy made no significant independent contribution to reduce the level of alienation although students were somewhat more alienated after treatment. Higher levels of alienation were associated with higher levels of diagnosis. Alienation seems randomly distributed among males and females. Both high and low achievers demonstrated less alienation than medium (average) achievers. Elder and more advanced students tend to be less alienated than younger or beginning college students. Lower socio-economic students tend to feel more alienated than medium or high SES students. Charles Edwin Voughton (1969) in his study found that alienation exist and varies widely in degree, it also indicate that university administration can alter the structure of the situation in which students interact with faculty and other
students at the university of general ways which will preempt or reduce such feelings of alienation.

Another approach to student alienation at higher level is represented in the study by Kenisten (1965). He worked on two problems. In the first problem he studied a small group of Harvard undergraduate who manifested syndrome of external alienated. In which no psychological results of an empirical nature were reported. His another problem was the psychology of alienated students.

Attempts were made to study the alienation of males and females. The results of different researchers were not contradictory at this level. Klein and Gould (1973) studied the alienation of college woman and found that in terms of alienation woman were similar to men. McBride (1976) found no significant differences in the levels of alienation between males and females or between students at the two different colleges. He also defined alienation as a syndrome composed of feelings of powerlessness, hopelessness, distrust, resentment, isolation and self-estrangement.

In a study Hajda (1961) found that social sciences and humanities graduate students were more likely to suffer from feelings of alienation and isolation as compared to non-academic people and institutions. It was also hold that student activists were more politically or academically alinated from others.

Hough and Neal (1969) worked on alienation and social learning of those students who were studying in vocational training centers. The analysis of the data has shown that alienation variables affect learning both of information about the immediate situation and also about future employment opportunities. Highly alienated individuals were relatively less
receptive to control relevant information, even if it was readily available to them.

To measure the degree of alienation at this level an attempt made by Burbach (1971). He developed university alienation scale to measure the characteristics of the universities social system.

In a study made by Moore (1977) significant relationships were found between graduates alienation and such characteristics as dwelling type material status, number of children, occupation, combined husband and wife income and religious affiliation.

Herron's (1971) study the alienation of university students revealed that student alienation was largely a function of structural characteristics of the institutional environment particularly its incapacity to fulfill the expectations the could evoke. The study confirmed that the incidence of alienation varied in degree with regard to various components of the university environment.

Some researchers have been conducted in the degree colleges of Delhi University. Differences in achievement of alienation and value discrepancy in academic of scheduled caste and non-scheduled caste students were investigated by Sood (1980). Results revealed that two groups differed significantly in their level of achievement anxiety. This means that the scheduled caste students suffer more from achievement anxiety than the non scheduled caste students. Achievement anxiety was found to be highly correlated with alienation level showing that student exhibiting a higher level of achievement anxiety would also exhibit higher level of alienation for the scheduled caste students. Gulati (1974) studied alienation of Delhi University students. She found that the three alienated groups significantly differ with

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respect to personality factor M - Praxermia-Autia, personality factor N - Artlessness - Shrewdness, personality factor Q3 - Low integration - High Self-concept, Control and Low-Higher ergie tension. The high and average alienated individuals significantly differ with each other. However the highly alienated and least alienated individuals were found to be not differing with respect to the personality factor M. But the normally alienated and least alienated differ.

In higher education, the learner is largely removed from the content to be learned; individual opinion is devalued and reliance on personal perception is dismissed as unscientific. Frosh (1991) argued that the very ethos of universities and colleges alienates students by excessive focus on utilitarianism, instrumentalism, measurable performance indicators, and standardized competencies. As Barnett (1994) cautioned:

To reduce human action to a constellation of terms such as “performance,” “competence,” “doing” and “skill” is not just to resort to hopelessly crude language with which to describe serious human endeavors. In the end, it is to obliterate the humanness in human action.

Student adjustment to college has received a considerable amount of research alienation. Early in a student’s career, adjustment occurs both in academic and social arenas. Academically, students typically face more work and less individual attention than may have been available in secondary school (Tripathy, 1986). Socially, family separation and week campus networking may lead to loneliness for new students (Moroi, 1986). If initial loneliness does not diminish, then social alienation may emerge.
Social alienation involves a persistent perception of being isolated or removed from others. It appears to be predictive of negative academic outcomes. Rejected children (Clasen, 1987) and lonely high school students (Dobson, 1987) tend to achieve lower grades. Daugherty, Vaughn, and Lane (1977) found in a longitudinal study that Social Alienation may be a factor in college attrition. Eventual dropouts reported significantly higher Social Alienation than graduates.

Upmanyu, Upmanyu, & Dhingra (1992) found that loneliness may vary as a function of gender. Specifically, men tend to report more loneliness than women. Perhaps men attribute time alone to personal failure and have difficulty initiating social risk (Schultz & Moore, 1986). However, the relationship between alienation and gender has not been sufficiently studied.

Research indicates that students involved in social organizations report significantly less isolation and loneliness. Prisco (1979) found that sorority membership appeared to reduce self-perceived isolation. Moran, Yengo, and Algier (1994) similarly found better social adjustment among participants in a college student organization.

It is predicted that women will report lower Social Alienation than men, and that members of Greek organizations will report lower Social Alienation than non-affiliated students. The interaction of Gender and Greek Status will be evaluated, though no prediction is being made. Given Social Alienation's relationship with college attrition (Daugherty et al., 1997), a better understanding of the correlates of Social Alienation may be useful to those charged with educating, advising, and counseling students.
(d) Alienation and School Environment:

Some selected bureaucratic characteristics were studied with student alienation by Davidson (1981). He found that students in high schools classified as high in bureaucracy do not exhibit significantly higher scores of alienation than do students in schools classified as relatively low on the dimensions of bureaucracy examined. There seemed to be a distinct shift of students in schools classified as relatively low in the dimension of bureaucracy that exhibited significantly higher scores on alienation than did students in schools high on the dimensions of bureaucracy examined. Anderson (1973) found positive correlation between school bureaucracy and alienation.

Academic achievement as a factor of alienation was studied by Jackson (1965). He presented a point of view that though academic difficulties of a student were linked with motivational problems, the apathetic student was a more distributing example of classroom failure than the youngster who was not doing well but who cared deeply about his lack of progress.

Stuart examined the conditions and resultant state of alienation in both elementary and secondary level. He asserted that the institutional "Press" bureaucratization and depersonalization generate in the students feelings of separation from themselves, feelings of separation from others and feelings of separation from nature. He also makes a recommendation for reducing alienation in school students.

Disruptive and non-disruptive high school students showed the significant difference in alienation. Such a study was conducted by Scurry (1976). He found that disruptive student were highly alienated. Student alienation has been studied as related to various other characteristics of
students. An attempt was made in these studies to see that attributes of students caused alienation or how alienation influenced consequent behavior.

Beneke (1971) studied the relationship between student alienation and seven other variables describing them. These seven variables were absent from school ethnic origin, age, teacher grades, test scores and other behavioral characteristics. It was found that the boys had significantly higher alienation scores than did girls. The alienated students were found to be having a tendency to shun institutionalized opportunities or some forms of denial of participation to internalize feelings of isolation thereby increasing alienation. A significant relationship between students showing high alienation scores and the students classified as having behavioral problems by their teachers was also found.

A sense of alienation prevailed among the adolescents generally. Intensity of responses suggested that the school was a less alienating situation than the family or interpersonal relationship. Such a study was made by Jutras (1981). He found that the best solution to the problem of alienation would be increased productive involvement with adults outside of school.

In a study of relationship between pupil control ideology of High School Teachers and Principals and alienation and structured role orientation of high school students made by Racine (1981). He made a survey on 418 students, 215 teachers and 20 principals in New York Capital District. The findings showed that alienation of high school students appeared to reflect the students’ personal orientation, (structured role orientation) rather than reflect the pupil control orientation of the teachers and principals in the

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schools. A thorough assessment of student orientations and the development of structural frameworks within which these individuals' needs can be fulfilled would ultimately be required.

The major purpose of the study of Dalrymple (1981) was to investigate the relationship between the moral reasoning of twelfth-grade students and their perceptions of their school environments, their family backgrounds and themselves. The results indicated that females used principle reasoning more than males when solving a moral dilemma.

The alienation of adolescents is generally considered undesirable. It is seen as a negative aspect of young people's lives, leading to behaviors such as drug abuse, sexual promiscuity and involvement in other forms of deviant behavior. Adolescents spend a significant amount of their time at school, and it is the role of the school that adolescents are prepared for society and future employment. Yet as many as thirty percent dropout of school before the completion of year twelve and a significant proportion of those before the completion of their compulsory ten years of schooling. Moreover, adolescents who have been alienated often become adults who are socially alienated, live in poverty and are politically powerless.

The understanding of adolescents alienation by examining some underlying theoretical constructs defined by Mau (1992) associated with the global concept of alienation. Greater understanding of the constructs enables educators to explore the issue of adolescents alienation in schools within a conceptual framework derived from the literature and leads to evaluation of interventions that have been tried with alienated adolescents in junior high schools both in Australia and overseas.
The article finishes with the suggestion that educators use the constructs of alienation as a checklist to help them evaluate new programs before costly implementation and to identify missing or inadequate components in their efforts to address adolescents alienation successfully.

Carlson’s (1995) alienation-nonalienation model is adapted from Finn’s (1989) participation-identification model. Finn (1989) in a study on school dropout literature, described two models for explaining the development process of alienation. Only the second model, the participation-identification model used one of Seeman’s constructs of alienation, that of belonging, the positive rubric for self-estrangement. The first model is a frustration-self-esteem model, which focused on an adolescent’s reduced self-esteem and increased problem behaviors as a result of unsuccessful school outcomes. In this paradigm, school failure, as a result of the school not providing an adequate instructional or emotional environment, leads to an impaired self-view, as the result of frustration or embarrassment, which leads to an increase in disruptive behaviors or juvenile delinquency, which in turn leads to the student rejecting the school context, which they see as being responsible.

The second model Finn (1989) has described, is the participation-identification model, which focused on an adolescents bonding or identifying with school, both behaviorally and emotionally. Identification is seen as the positive rubric as opposed to the negative alienation or withdrawal.

Student alienation has been measured in a variety of ways with a number of different instruments (Rokach e 2003; Slater, 2003; Thorpe, 2003). The Chilly Classroom Climate Scale and its variations (Janz & Pyke,
2000) have been popular in determining college student alienation associated with gender and non-traditional areas study (Allan & Madden, 2003; Seifried, 2000; Serex, 1997). One approach to assessing student alienation is Classroom Life Instrument (Johnson & Johnson, 1983) which includes 11 items that measure alienation including items that require inverse scoring (e.g., Schoolwork is fairly easy for me). Ghaith (2003), for example used a modified version of the Classroom Life Instrument to investigate the relationship between perceptions classroom support, feelings of alienation from school, and the academic achievement of university-bound learners of English-as-a-Foreign-Language.

Karin Oerlemans and Heather Jenkins (1998) in their study revealed that the student did not like school, they felt powerlessness, felt they were wasting their time, questioned the relevance of the classes they were taking and found the school a hostel and unfriendly environment.

Adolescent alienation from society is a serious issue confronting many industrialized nations. It is a particularly distributing relationship between the adolescent and their family, society, school, peers or self (Calabrese & Cochran, 1990). To be alienated is to lack a sense of belonging, to feel cut off from family, friends or school (Bronfenbrenner, 1986). It is seen as a negative aspect of young people’s lives, associated with behaviors such as violence, school failure, drug abuse, sexual promiscuity and involvement in other forms of deviant behavior (Newmann, Rutter & Smith, 1989; Mau, 1992; Zubrick, et al. 1997).

Zubrick, et al., 1997 in a study observed that when students were asked how they felt about school, one in five responded that they disliked
or "hated" school. The study involved no correlation between those students who hated school and those who did not attend.

West Australian adolescents also have discipline problems at school. The West Australian Education Department's expulsion and suspension statistics show that about 5 per cent of students were suspended from school in 18 months (West Australian, 1997). Suspensions were given because of behaviors such as verbal abuse, damage to property, violation of school rules, and for more serious offenses such as selling drugs and physical assault. Again no correlation has been done between those who have been suspended, those who do not attend and those who are alienated from school.

However, an earlier study in American schools, found there was a significant correlation between those adolescents who had problems with school, and those who truanted and eventually dropped out (Whelag & Ruttrt, 1986), that when controlling for academic function, that is ability, expectation and outcomes, truancy emerged as the most significant predictor of an adolescent dropping out of school. Other significant predictors proved to be those adolescents who had discipline problems, and, less significantly, those who were frequently late and those who worked outside of school at a job. These studies indicate the significance of truancy and discipline problems as important indicators of adolescent alienation and form part of the conceptual framework for this study.

(c) Alienation: Its Dimensions:

Samval Long (1977) while studying the dimension of
student academic alienation used interview method for measuring alienation among students of high school. He made a questionnaire on the five dimension of alienation. The degree of alienation as experienced by black students of arts college was studied by Claerbaut (1976). He measured six components of alienation, i.e., powerlessness, meaninglessness, normlessness, cultural, estrangement, social estrangement and estrangement from work. The results indicate that the population was not alienated along the lines of meaninglessness, powerlessness, cultural or social estrangement, as over 60 percent disagreed with the items related to those components. Alienation was evident in terms of normlessness and estrangement from work. Samual Long (1977) studied the dimensions of student academic alienation and found that alienation was of the following five types:

(1) Feelings of cynicism regarding basic academic values and the means by which these values are achieved.

(2) Feelings of meaninglessness concerning the purposes and operation of university system.

(3) Feelings of powerlessness in attempting to participate in the university governance process.

(4) Feelings of negative effect in evaluating university administrators.

(5) Evaluation of university administrators as exhibiting mediocre performances and inferior attributes.

Attempts have been made to measure the alienation in the population of High School Students. Dean’s (1961) scale of alienation was
used to measure feelings of powerlessness, normlessness, social isolation in high school pupils.

Alienation syndromes have been studied by Gould (1964). He found that alienated subjects confirm significantly more to peer group pressure than do non-alienated students. Researchers have been made on the problems related to student alienation. Such a study was conducted by Reha Buford (1966). His first problem was to measure the child involvement and alienation from school program and the second problem was “Institutional Paternalism in High School”.

Mau (1992) examined the validity of the multidimensional concept of alienation in the school context, and focused on the four dimensions of powerlessness, social estrangement, meaninglessness and normlessness. Powerlessness refers to the student’s feeling of lack of control over their lives. Social estrangement, combining Seeman’s (1975, 1979) constructs of self-estrangement and isolation, refers to the student’s feelings of isolation, which can be a physical isolation or a mental or emotional withdrawing of themselves from their situation. Meaninglessness refers to a student’s feeling of irrelevance to what is happening to them right now. With alienated students the only relevant time is the one that is happening ‘right now’, “the past is done and the future is mostly unimaginable” (Lindley, 1990). Normlessness refers to a student’s rejection of society’s rules and norms.

Within the school context adolescents alienation is often exhibited in behaviors such as self-isolation, failure, violence, absenteeism, truancy, and dropping out (Mau, 1990; Zubrick, 1997).
In Western Australia it is the law that students attend school to the end of year ten. Yet in the recent WA Child Health Survey of schools 3 per cent of students were absent for at least one day per week, or 20.

Carlson (1995), in her study of an Australian high school investigated the feelings and actions of students identified as alienated from physical education. Using the findings of the research she developed a model for explaining the process of alienation, focusing on three constructs of alienation, meaninglessness, powerlessness and isolation. She described alienation as the “persistent negative feelings some students associate with actively aversive or insufficiently meaningful situations” that is, students find class or school ‘boring’. Adolescents need to find meaning in what they are doing. An inability to make personal meaning from the curriculum, leads to normlessness, which Carlson describes as lack of participation, or faking, which in turn leads to isolation in the classroom, a further lack of success, feelings of powerlessness, and thus alienation.

Alienation is term used to describe student estrangement in the learning process (Brown, Higgins, & Pauls 2003). Mann (2001) defined alienation as “the state or experience of being isolated from a group or an activities which one should belong or in which one should be involved” (p.7). Newmann (1981) identified four fundamental aspects of student alienation; powerlessness, normlessness, meaninglessness, and social isolation. Powerlessness refers to student perception of absence of personal control in learning. Normlessness reflects 1 of appropriate rule-governed behavior (e.g., academic dishonesty). Meaninglessness describing alienated students’ interpretation of curriculum as irrelevant to their current and future needs.
Loneliness and separation from peers and teachers characterizes social isolation. Alienation is a useful construct for understanding the mechanism associated with undesirable learner outcomes and in developing strategies to circumvent student academic failure (Redden, 2002; Taylor, 2000; Thorpe, 2003).

1) Alienation with Other Factors:

A review of previous literature indicates that teachers and students are alienated in every institution with a varying degree. This alienation is produced by several factors. Some of the researchers found dating behavior, friendship, relationships, parental relationship, grade point averages, feeling of stratification, absence from school, age, teachers grades, level of education, degree of acceptance of traditional values towards the family, experience, level of aspiration as the significant factors. On the other hand some researchers found age, experience, occupational status attainment, salary, sex, membership of a caste, rural and urban location of institution and colleges and academic background as not related to alienation. Thus, a large number of factors have been related to alienation as its causal factors. Yet, many factors still remain to be related to student alienation.

Factors of alienation have also been studied in others fields other than education i.e. in sociology-sociological factors, in business differences in types of supervision, freedom of research choice, professional climate and company encouragements etc.

Sex, as a factor of alienation has been studied in several researchers. O’Nell RSM (1976) found that sex is not a significant factor of alienation. A similar conclusion was made by McBride (1976). But, sex was found a
significant factor in the findings of Bhatnagar (1980), Gupta (1979), Beneke (1971), Kulpa (1981) and Moye (1976). In the study of Bhatnagar it was found that rural-urban location of colleges was not linked with the level of alienation of college teachers. Size of the college emerged to be correlated with teachers alienation. A higher degree of alienation was found to be present in the teachers of large colleges as compared to that of the teachers of small colleges. Large size of the institution, perhaps, causes greater alienation in the teachers. The teachers of private colleges were found to be having higher degree of alienation as compared to the teachers of government colleges. The types of management of the institutions also appeared to be associated with teachers alienation.

Parental relationship was found to be the best predictor of alienation as a whole, number and quality of friendship relationships and satisfaction with the institution also emerging as predictors when combined with the variables of parental relationships. Such a study was made by McBride. He also added that the feelings of support by the institutions and feelings of satisfaction were also found related to powerlessness and some other dimensions of alienation.

Beneke studied the relationship of student alienation and seven other variables like absence from school, ethnic origin, age, teacher grades test scores and other behavioral characteristics. A significant relationship was found between students showing high alienation and the students classified as behavioral problems by their teachers.

Winters (1976) found that participation of mothers in school life is a more powerful influence on feelings of alienation than a number of socio-demographic factors. In a study of political alienation phenomenon was
little influenced by the operational effect of difference of age, variability and differences in religion, membership of a caste and sex and family diversions in the income. Attempts have been made to study the factors of alienation in sociology. Wenz (1979) studied sociological correlates of alienation and found eight variables to be significant viz., contact with peers in neighborhood, broken romances and economic status of parents of adolescents. Similarly Garces (1976) in the study of social structure, modernization and alienation found two types of factors of alienation. Subjective factors were more important than objective factors. Among objective factors perception of opportunities for mobility within the social structure, the level of education, and the degree of acceptance of traditional values towards the family were found to be exercising largest influence on alienation. The occupational rank emerged as the smallest predictor of alienation while status attainment, experience and level of aspiration were not found related.

The causes of student alienation are multifaceted including curricular, institutional, and socio-cultural factor (Brown et al., 2003; Huffman, 2001; Redden, 2002; Rokach, Bauer, & Oreck, 2003; Taylor, 2001; Trusty & Dooley-Dickey, 1993). Alienated students feel incongruent with curricula and devoid of opportunities to establish meaningful connections. Such disconnection results in apathy in the learning process (Parish & Parish 2000). According to Mann (2001), alienation is caused by a teaching-learning process characterized by compliance and bereft of creativity.
However, the different distinctions of alienation are important as they imply different strategies for intervention, to one who feels that they are learning in class is irrelevant (Newmann, 1981).

Alienation can be influenced by a variety of factors, including factors from the home, school and from within the adolescent themselves. What is alienating will also depend on the context and the circumstances, as it not a static phenomena (Cumming, 1996). It may even be said that whilst all adolescents experience potentially alienating contexts, there appears to be a threshold below which the adolescent is no longer able to tolerate what is happening to them, and they exhibit behaviors commonly associated with alienation (Tripp, 1986).

In contrast to the complex and sometimes controversial causes of student alienation, the consequences of academic disconnection are straightforward. Withdrawing from post-secondary study prior to program completion has been attributed to student alienation (Cadieux, 2002; Muse, 2003). Slater (2003) identified aggression, manifest in a variety of forms, as a consequence of student alienation. A range of psychological emotional problems characterize students who are alienated from the learning process and estranged from the instructional environment (Redden, 2002). According to Brown and her colleagues (2003), the consequences student alienation are “gang activity, violence, vandalism, absenteeism, truancy, and other forms of deviant behavior”. Alienated students experience an inability to cope with unfulfilled social and learning expectations. Mann (2001) interpreted alienation as a strategy of self-preservation. By refusing to engage in the process of learning and by abandoning personal attempts to connect with curricula and with others,
“the ser of self is not threatened, safety is maintained and unity is preserved”. The consequences to the learner, unfortunately, are absence of vitality and abandonment of the desire to learn.

(g) Alienation in E-Learning Environments:

During the past few decades, instructional applications of computer and Internet technologies have resulted in range of e-learning environments and online learning events (McArthur, Parker, & Giersch, 2003). While considerable research effort has attempted to apprehend the mechanism of e-learning and establish effective instructional technology practices (Al-Bataineh & Brooks, 2003; Hedberg, 2003; Johnson, Howell, & Code in press; MaNabb, 2001; van Eijl & Pilot, 2003; Valdez et al., 1999), many questions remain. The extent to which research findings based on traditional classroom can be applied to e-learning is unclear. On the one hand, it could be that psycho-educational constructs such as alienation transcend the real–virtual instructional dichotomy. On the other hand, it may be that differences exist between real and virtual learning environments that radically alter the pattern of variables previously implicated in student alienation and academic achiever. In e-learning environments, are some students estranged from curricula and disconnected from e-instructional process?

A particularly popular post-secondary application of Internet learning technology is WebCT (Curtin, 2002; Johnson & Howell, in press; Kendall, 2001; Linder & Murphy, 2001). WebCT is a course management system comprised of an integrated set of educational tools for constructing and managing online course environments. For teaching
faculty, these tools fall into four categories: 1) educational tools that facilitate learning, communication, and collaboration; 2) content building utilities for organizing course material; 3) administration utilities for meaning courses; and 4) design utilities for constructing courses (WebCT, 2004). WebCT provide a variety of tools and features that can be added to courses including a conferencing system, on-line chat student progress tracking, grade maintenance and distribution, access control, navigation tools, auto-marked quizzes, electronic mail, course calendar, and student homepages. Most typically, instructors tailor courses by selective use of WebCT tools (Willett, 2002).

Ross (2000) argued that contemporary society breeds alienation and disconnection among people. The increase presence of information and communication technologies has been identified as a catalyst of alienation in human learning and social exchange (Cooper, 1995; Rintala, 1998). Knapp (1998) summarized the popular sentiment that “computer-based information technologies separate and alienate people from direct experience with nature and community, pollute the environment, disrupt ecosystems, and lead to inadequate curricula”. Some educators/researchers paint a picture of alienated youth surfing the net in chronic social isolation (Tell, 2000) gravitating toward violent and alienating computer games and Websites (Slater, 2003). Cadieux (2002) report that college students in face-to-face learning groups had stronger feelings of trust and interaction effectiveness than did students in online groups, although “no significant relationship was found between sense of community and course grades”. Social and learning applications technology are, to some
extent and in some cases, interpreted as mechanism of student alienation (Muse, 2003).

An investigation was sought to understand the relationship between college student alienation, academic achievement, and use of WebCT by Johnson, WGM (2005). Findings suggest that peer alienation was associated with increased WebCT use; learning alienation and course alienation were associated with low WebCT use. Learning alienation demonstrated an inverse relation to academic achievement. In most cases, significant predictive relationships between academic achievement and student use of WebCT were curvilinear.

(2) Studies related to Energy Education:

Recently the attention of the educationists, economists, scientists and statesman of both developed and developing countries has been centred on non-conventional resources of energy and Energy Education. The cause being that the present ecological crisis, accelerating energy and consumption has become a major issue at National and International levels. In India, need to take up thorough study and research work on this topic is being felt. It is not out of usefulplace to mention here that a good deal of study and research on non-conventional resources of energy has been conduct aboard. Whereas, a very few Indian universities have taken it up. Among these few universities, which have just taken up the preliminary studies and research work on Energy Education are Allahabad University, Gardhwal University, Kumaun University, Krukshetra University, Lucknow University and Meerut University etc. Keeping in view the present crisis of energy it is very essential to
undertake in depth study of non-conventional resources of energy and energy education for rapid development and progress of the nation.

**Raymond Michael Joseph** (1979) represented a systematic and interdisciplinary investigation of the potential impact of environment stresses in the form of energy availability on the paradigm goals and premises and structure of American Public Schools in the future. This study was based on the rationale that planning for organizational change is preparation for the future. In a time of growing energy scarcity, it is imperative that planners explore the relationship of social organizations to their environment. The Delphic methodology was employed to gather and process data concerning the perception of an expert panel of social scientists, environmental scientists and educators. The Delphic process consisted of three rounds involving the use of three questionnaires, which were mailed to the participants. The questionnaires yielded probability and desirability scores, which were converted into a stresses index and then plotted on a stresses graph. This study addressed four research questions and culminated in a list of recommendations for organizational planning and further research into this problem. The methodology used in this study was an appropriate means of investigating critical issues associated with system change. If energy resources continue to grow, there is a high probability that our socio-cultural paradigm change in natural energy availability in the future will not notably affect the continued acceptance of the goals and premises and structure of public education in the country.

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**Lincoln Judith Ann** (1980) focused on local tax rates and efforts of public school districts to conserve energy in pupils’
transportation programmes. This study was designed to discover if districts with higher local tax rates would exhibit more or less conservation efforts than other districts. Public School districts in Illinois are permitted to levy a local property tax for their transportation of up to 12 and per 100 of assessed valuation without a referendum a up to 20 with a successful referendum. Public School districts in Southern Illinois were divided into four groups based on their tax rates and referenda histories. Group one consisted of those districts whose rate was above 12%, group consisted to those consisted of those districts having rates below 12%, group three consisted of those districts having 12% rate but had least one rejected referendum, and group four consisted of those districts having 12% rate but had not submitted a referendum. It was found that group one exhibited significantly more efforts to conserve energy in transportation than did the other groups. Group three exhibited significantly more than group two or group four. There was significant difference between efforts of group two and group four. Even through both groups that had submitted referenda to the votes showed greater efforts to conserve energy than did the other two groups, it was found that changes did not generally occur in 1978 and '79. More districts reported changes being made during 1978 than in any other year. More referenda failed during 1976 for the districts in group three than in any other year. Changes in transportation activities reported most often in areas of service and least often in areas of vehicle ownership.

Paulism Michael (1981) represented a study to determine the relationship between energy usages and twenty-two selected energy saving measures incorporated by the Illinois Public University in fiscal year

(68)
1976-80. The study culminated in evaluation of statistically significant and positive or negative relationship of the data through use of Spearman correlation formula. The conclusion of this study was that three was a positive relationship in time equivalent students and decreased energy usages and twenty-two selected energy saving measures incorporated by the Illinois Public University.

The National Project on Biogas Development (1982) of the Ministry of Non-conventional Energy Sources (MNES), Government of India, was started in 1981-82 for promotion of Family Type Biogas Plants (FTBP). The current potential of which is estimated at 12 million, to provide clean alternate fuel to the rural masses and enriched organic manure for agriculture. The implicit objective of the programme was the reduce the use of non-renewable fuels and fuel wood. The origin of the National Project on Biogas Development (NPBD), launched in 1981-82 by the Ministry of Non-Conventional Energy Sources, could be traced back to 1970s when successive oil crises and their fallout effect on economic growth necessitated development of alternative source of energy. Through the socio-economic and environmental impact of biogas is well recognized, NPBD had been receiving public attention and scrutiny in India because of its vast potential on the one hand and its poor performance, high mortality and non-functionality rates on the other. At the instance of MNES, the Programme Evaluation Organization (PEO) undertook evaluation of NPBD primarily to examine if the implementation methods being currently followed are contributing to increased adoption of family type plants and to reduced mortality and non-functionality rates. The study is also designed to identify the factors contributing to success
and failure, to examine the efficacy of family type biogas plants as an instrument to realize the biogas potential and to reflect on alternate strategies for biogas development. The major findings of the study are: A majority of biogas user households are well-to-do farmers. Only 45 percents of plants are working fully and another 10 percent are being used partially. The average size of cattle holding of owners of functional biogas plants is found to be 5.23 as against the criteria of 3 used for estimating potential. While the secondary data available with MNES/State Governments indicate impressive achievement and functionality rates, the primary data do not support such figures, thus raising a question about the credibility of the reporting system of the project. The project does not seem to have significant impact as only 7% households in the sample villages were found to be using biogas, often as a supplementary source of fuel. In order to harness the potential of biogas, there is a need to bring a much larger proportion of rural households in the ambit of NPBD. This is possible only through creation of large biogas plants at community level. The report suggested new strategy for realizing the biogas potential, as it is not possible for the majority of rural households to own and operate FTBPs.

Newitt Jay Stewart (1982) represented a study to examine relationship between actual amounts of energy consumed in a home and the construction of the home, the occupant’s attitude towards energy conservation and, the occupant’s knowledge of energy conserving techniques. Another purpose was to determine attitude of knowledge of people living in homes built to minimum energy standards. A group of energy efficient homes and a group of standard home similar in design
and style were identified for the purpose of study. The occupants of the homes were interviewed using an energy attitudinal survey and a test on energy conserving techniques. The investigator designed the instruments. Permission was obtained from the homeowners to examine their utility bills from the previous heating season. The scores of the attitudinal survey and the test on energy conserving techniques were examined along with the number of Kilowatts-hour of energy consumed per sq. ft. of living space and correlated to each other to determine if people with more positive attitudes about energy conservation or more knowledge of conserving techniques, reflected these characteristics in their actual energy consumption. It was found that they did. It was also found that the people who lived in energy efficient homes had more positive attitudes regarding energy conservation or more knowledge of energy conserving techniques than the people in the standard tract homes. The data also indicated that energy efficient homes consumed less energy per sq. ft. than homes built to less energy standards.

Gette Gladys Ruth (1983) conducted a study to ascertain the applicability of alternative energy technology and energy management; conservation principles and techniques to higher education institutions in general and on their organization and administration. It laid particular emphasis on study of their availability in years immediately ahead. There was also emphasis on study of conservation techniques. Also questionnaires were utilized to higher education institution identified as being deeply involved to conservation or uses of alternative energy resources or both. While there has been considerable research about development of alternative energy sources, energy conservation techniques
constitutes the most important process currently available. These in use range from simple conservation techniques to advanced computers systems. The most important deals was improvement of the efficiency of existing systems, and educating college community about whole area which the study found to be key persons in most situations. Continued concern on the part of the administrators in necessary. The problem of energy crisis will continue despite what appears to be a current easing out of situation. Development of alternative energy source will require prolonged study and development. Important changes in organization and administration did not appear to be demanded. The changes needed were likely be achieved by modification of current organizational structures.

**Everett and Evington** (1984) of New Mexico State University represented a study to determine if a programme on solar energy would appeal to person who do not normally participate in adult education programmes, if use of a preferred media will lead to higher levels of performance, if the learners show greater learning from the medium with which they had the greatest successful previous experience, and if high verbal or speech ability will provide information about performance of workers in a solar related industry on a specific medium of instruction. One important impetus for promoting this interest comes from policy makers who view such programmes as a means of bringing about desirable social change. Barriers to participation in adult education programmed include access to the attitudes towards these programmes on the part of public. The data from survey revealed a significant difference with viewers of solar energy programmes, being older than non viewers. In the Las Grues sample the sex-ratio of viewers did not depart from
chance expectations and was in line with expectations based upon national figures for participants in adult education programmes. In the field test of the sheet metal workers, significant learning gains were obtained with both the printed and audio visual instructional materials. It was determined that learning by a preferred medium does not appear to lead a greater learning again. Further more neither previous learning experience with a media nor familiarity with a medium, as judged by time spent in learning with that medium was significant. Moreover, specific aptitudes did not appear to be significantly correlated with learning using one medium over other. It was recommended that audio-visual materials be used for the dissemination of information about solar energy. It was also suggested that in planning for television instruction, more money be budgeted for advertising. Two further recommendations are that education planners should selected media with a view to overcoming reluctance based on past experience and that more attention be paid to the targeted learners, subjective perceptions about media with which they learn best.

Pederson Elaine Lee (1984) undertook a study to explore energy consumption attitudes, knowledge and practices of 10 rural families with teenagers. A human ecosystems provided the conceptual framework. There microenvironments were investigated for transportation, clothing and housing. Data was collected in a seven-month long field study from August 1981 to February 1982. It was discovered that in the transportation microenvironment there is a relationship between high mileage and farm families, the number of activities, distance from activities, the number of vehicles, status and freedom mobility attitudes
and frequency of travel to relatives. A relationship exists between automobile energy conservation and vocational or occupational interest in automobiles. In the clothing microenvironment thermal comfort was more important to adults than the teenagers. There was a positive relationship in between thermal comfort practices and knowledge. Attitudes were not predictive of practices. Low natural gas consumption and physical comfort taken as least important attitudes were related. Low electricity consumption was linked with small families and use of fewer appliances. Families were identified as having low, medium, high or mixed levels of energy consumption. The variables, which were factors in determining a low, medium, high or mixed energy consuming family, were family size, house size, number of appliances, material goods desired, frugal attitudes, knowledge of energy conservation tasks, understanding of energy resource situation and children's attitude towards energy resource consumption. Families developed mechanism to adopt the increasing resource prices. They engaged in satisfying decision-making strategies, which involved a search for an acceptable alternative to the rising prices but not necessarily an option choice. Families were unwilling to give up comfort in their microenvironments. Comforts in the housing and clothing microenvironments were positively related: it was not a trade-off for energy conservation. In the transportation microenvironment, families' choice not to ride in physical inconvenience was major contributor to freedom from discomfort available available by free use of private vehicle.

Goldenberg Carl Thedox (1985) undertook an investigation to analyze learning for rural life development. Rural poor people of non-
industrial societies need more consequential and efficient learning systems in order to serve and prosper in the face of environmental degradation, control and misallocations of commercial resources in urban cities, underemployment, crime and potential instability. It is hypothesized that organization and direction of learning may be made more efficient and consequential if the potential energy inputs for learning can be identified and analyzed. By reviewing data from many scientific disciplines and education, it was concluded that with present technology, an energy-based ecology of education cannot be made holistic. Too little is known about genetic information to describe it in energy terms. Perceptual information to describe it in itself is not significant. However, energy analyses of other elements in the proposed ecology of education are useful. Communication and care of human effort in subsidizing others with information, services, goods, and expression of love and indicators of status significantly affects learning. Furthermore, energy amounts in forms of communication and care are important and can be measured. Similarly amounts of energy in food consumed beginning before birth and continuing throughout life have consequences for learning and can be calculated where the kind of food has importance for learning ability. The specific food can be analyzed. Energy analysis is easiest to apply in comparing technologies of fuel, tools and organizations involved in Education. Rural Thai people and probably the rural poor worldwide would benefit from energy analysis of their learning system. Farmers would understand it, the local leaders would support it but poor rural parents and village teachers could need outside help in experiment, evaluation and motivation to change. It appears that only the urban
professionals and academic institutions in Thailand have the resources to initiate research in energy learning, rural life development and relationships. However, rural Thailand is fertile for research and rural Thai people welcome innovations and demonstrations, if they appear advantageous to the individuals or community. With energy-oriented survey, rural learning ecologies become better understood and rural life improves.

Another investigation was carried out by Borry Christine Louise (1986) to examine the similarities and differences among cross-cultural groups regarding attitudes towards nuclear energy as a major energy source. The relationship of individual values to these attitudes was also investigated. The study data source was a two part self-administered questionnaire. The first part consisted of 21 question regarding attitudes towards nuclear power. The second part the Research was Value Survey which provided data on individual values. The research was conducted among 104 American and Non-American graduate students attending classes in School of Business and Management at United States International University located in San Diego, California. These individuals held middle management positions in government and business their own countries. The specific research questions dealt with the research problems. The data analysis was an item-by-item percentage comparison between and among the cultural and sex groups that comprised the study sample. Result suggested that dominant values within the value system existed having cross-cultural relationship. It also became apparent that there were dominant different values among the participant
groups in the study and it is these differences that were reflected in their attitudinal choices.

Robert A. Pittillio (1987) undertook a study to review the literature pertaining to current situation in United States of America and effects of rising energy costs on school building design, on mechanical equipment design, and on plant operations practices. The purpose of this study was to identify measures adopted by North Carolina public school system and energy management programmers to reduce energy consumption in school facilities design and plant operations. The third purpose was to identify measures architects and mechanical engineers incorporated in school construction design to make building more energy efficient and to ascertain their options, on measures to improve school planning, design and construction processes. The fourth purpose of this study was to conclude findings to assist school administrations and professional designers in their efforts to reduce energy consumption in public school facilities. The findings of the study were that there is no complete agreement among architects and mechanical engineers or between the two groups, as to what constitutes economic and efficient design. However, architects incorporated new ideas and measures in school design such as using earth as insulation; orienting buildings to canalize favourite climatic conditions to minimize negative energy flow through “building shell”: and specify efficient luminaries and switching circuitry to permit selectivity and flexibility in lighting levels. Mechanical engineers are developing and refining a combination of new approaches in mechanical system such as “heat pumps”, heat recovery systems and computerized controls to lessen new energy requirement. School Principals
listed apathy, negligence or complacency as the biggest deterrent to energy conservation at the school level. This lack of interest also existed among some superintendents as well as school boards. Thirty percent of the superintendents responding to a questionnaire indicated that their boards of education had not adopted the policies designed to conserve energy. Variations in responses to similar questions by superintendents, principals and maintenance directors indicated that there is lack of know-how, concern, coordination, and/or enthusiasm for energy conservation at the central administrative levels. Response to questions indicated variations among state school system with respect to school planning and plan operation efforts to curb energy consumption. Differences also were apparent relative to plant operation practices that have been and continue to be questionable. Larger school systems were carrying out more systems-wide conservation programs than smaller ones, particularly in the area of maintenance and operations. Responses indicated that inadequate funding and less man power for maintenance and operations is a major deterrent to effective energy conservation programme in most of the school systems in the state.

Vaughn Dorothy Lenette (1988) did a study based on need for delivery systems for solar energy instruction for vocational and continuing education classes. A delivery systems was needed which has potential of providing instruction in New Mexico and similar states where there were large distances between students and educational instructions as well as between main and branch campuses. Although television instructions has been used in various countries to provide educational activities to isolated areas and provide instruction in areas of new
technology, limited research concerning its effectiveness of television instructions in vocational classes. The study utilized vocational classes from two post secondary institutions in New Mexico. The solar energy related classes from each of these institutions were used to test the effectiveness of television instruction in providing solar energy information. The purpose of this study was to determine, how effective television instruction is in providing vocational students with information of solar energy, the attitudes of adults to television institution and, if adults of varying educational and age levels score differently on test over solar energy depending on whether they receive television or regular instruction. The studio quasi-experiment involved two non-equivalent groups, each receiving television instruction at different times. As one group received television instruction, the other group received regular instruction. Pre and post test were given to determine effectiveness of each method of instruction. Attitude concerning television instruction were determine by the use of an instrument. Participants with television instruction received better instruction when the factors of age, formal education and pretexts scores remained constant. The adults participating in study stated that they enjoyed the series, learnt from it and would recommend it to others. Instructions by an instructor were preferred over both television and book. It was recommend that post secondary vocational programmes preparing solar energy related workers may consider using television instructions as a means of providing a long distance delivery systems to more actively participate in educational activities.
Edward Sally Mitchell (1989) undertook a dissertation in Indiana University to propose and confirm the proposition that if different statistical techniques are used then sectional differences can be shown to an equally, if not more, influential factor in congressional roll call voting, at least in the areas of environment and energy. Sectional conflict is often overlooked as a factor in national policy development. Statistical techniques employed by researchers in analyzing national political data, especially congressional roll call voting. Multiple regression analysis is the statistical method that most roll call researchers use. The conclusions drawn from these analyses generally indicate that partly affiliation and/or ideology are the best predictors of legislative voting partners, with sectional differences having little, if any, impact on the congressional decision making process or voting outcomes. In this analysis he used both multiple regression and analysis of variance (ANOVA) to illustrate this point, analyzing roll call votes from the 92nd to the 99th Congress (1971). By analyzing eight congresses, partners of sectional conditions on energy and environmental issues were identified and tracked. The results of Edward Sally Mitchell (1989) suggested that sectional differences were contributing factors in the development of national policy on environmental and energy matters. Furthermore, ideological coalitions were almost mirror image of sectional coalition on energy and environment suggesting that there is a strong correlation between ideology and the regional conditions in Congress.

Cartwright Dennis Dwaine (1990) undertook a study on Level of cognitive development, as defined by Piaget, as learner characteristics. Learner characteristics are important in determining the effectiveness of a
method of instruction. The energy environment simulator provides concrete experience in dealing with abstract real world problems. Development theory suggests that students of lower cognitive levels need concrete experience to acquire abstract ideas. The purpose of the study was to compare methods of developing awareness of energy information and establishing positive attitude towards wise use and conservation of energy by individual at various levels of cognitive development. The inadequate variables, treatment of cognitive level as well as the resulting instruction were tested for significance. The findings revealed that none of these were significant (p=0.05) with attitude as dependent variable. Both cognitive level and treatment were significant with awareness as the dependent variable (p=0.05). Simulation was significantly more effective in developing energy awareness than lecture. Individuals at higher levels of cognitive development scored significantly higher on awareness test than individuals of lower cognitive levels. The interaction between cognitive level and treatment was also significant (p=0.05). This indicates treatment does not affect awareness scores of individuals at different cognitive levels in the same way. There was a significantly greater distance between awareness scores of subjects in the simulation and lecture treatments of the subject at a lower cognitive level. Lecture and simulation in formal subjects were equally effective as in non-formal subjects.

Cameron Daniel Forest (1991) undertook a study in University of Kentucky to investigate energy perspective of persons who professionally communicate about energy and the communication perspective of those communicators. Energy issues become front-page and
broadcasted lead news stories in the two energy crisis period of the 1970's. The reporting was controversial in many aspects, and a major question arose, "Does the media have a vendetta against business, and specifically against the energy sector and even more specifically against the oil industry?" Four communication and four energy types resulted from this analysis, revealing a diversity of thoughts among energy communicators. This diversity discounts the probability of a purposeful media-communications type included the following, labelled by the author for descriptive purpose, Audience Sensitive Persuaders (14), Audience Oriented Conversers (27), Communication Doubters (9), and Efficacious Persuaders (10). The energy types included Utilitarian Protectionists (28), Entropic Preservationists (5) and Technological Futurists (13). Slight crosstendencies developed from the analysis the Entropic Preservationists tended to be persuasive in his or her communication assumptions. While the Utilitarian Protectionists and technological Futurists were less Persuasive.

Another study was undertaken by Mclock Robert Jackson (1992) to access energy conservation techniques being implemented in school districts in the state of Ohio. Information and data were obtained that addressed the evolution of energy policy and present energy status in the United States, the impact of present economic energy status in the United States the impact of present economic energy status upon education institutions, recommendations for energy management in both elementary and secondary schools and unique energy conservation techniques that have been implemented by school districts. The objective of the study was, to survey the school districts in the state Ohio to
determine specific energy conservation techniques that have been utilized, to identify specific energy conservation techniques that are being implemented according to district type, district enrolment wise, and district assessed valuation per pupil and to compare these energy conservation techniques identified by the study with suggested implementations values provided by the Energy office of the Ohio State Department of Education. A questionnaire was administered to all public school districts in the state of Ohio. Data obtained from the responding district was analyzed for demographic characteristics. 58% had planned active energy conservation management programmes, 58% places emphasis upon both long and short range conservation planning. 78% were able to reduce energy expenditure between 1-15%. 55% indicated energy conservation in more than half of their buildings, 74% reported obstacles to implementation of energy conservation and 60% cited the superintendent as being responsible for implementation of energy conservation. The specific energy conservation techniques gave highest implementation priority was in the heating and cooling area while lowest implementation priority was in the extra activities and food services areas. Vocational districts, with enrolment greater than 10,000 students and districts with assessed valuation per pupil greater than $60,000 showed the highest percentage of energy conservative implementation. Data indicated an active energy conservation awareness and involvement in all areas of energy conservation management. Suggested implementation percentage were acceded for several specific energy conservation techniques, however there existed a need for placing greater emphasis on energy conservation by all districts.
An investigation was undertaken by Dalton Eleamer Kozoi (1993) to examine the effects of Magic Circle on elementary student and teacher self-concepts in an energy impacted area. The hypothesis were that there would be no significant difference between treatment and concept student’s self-concept sources, there would be no significant difference between treatment nd control teachers, self-concept sources of students within the treatment group who had lived in delta for one year or less. Result of the study indicated that the Magic Circle treatment produced significant by higher student’s self concepts beyond the 0.001 level of confidence, there was no significant difference in teacher self-concept scores of students within the treatment group who had lived in delta for two or more years and those who had lived in delta for one year or less using the Magic Circle has a positive effect upon the self concept of students.

Walsh Roberta Ward (1994) undertook an investigation in Brandies to study Regional impacts of energy savings which were realized by participants in the federal Low-Income Weatherization Assistance Programme (LIWAP). These were estimated for the 1990-91 fiscal year, using a 9 region, 11 sector version of Multi-Regional Input-Output (MRIO) model. Inputs to the models consisted of reduced energy expenditures and demand changes in 21 household expenditure categories aggregated from interview data of the 1990-91 Consumer Expenditure Survey (CES) of the U.S. Department of Labour, Bureau of Labour Statistics. Demand changes were estimated from derivations of consumption impacts based on an average 13.4% energy savings attributable to the programme by U.S. Department of Energy impact
evaluation. Eligibility criteria for LIWAP participation were used to extracts households for this study. Using regression analysis consumption impacts were derived as a function of demographic variables (age, race and sex of household head, family size and region of residence). Results showed consumption impacts of energy savings having the greatest effect on total housing expenditure (31%), followed by those for transportation (29%) and food (13%) for the sample population. The reduced energy expenditure and demand changes on the inter-regional; inter-industry economy, as estimated by the MRIO Model resulted in a net negative impact of approximately 11.5 Million Dollar. Net effects varied among regions and industries, for example, agriculture and related industries realized again in the North-West and Central States. The net negative impact might be affected by demand changes resulting from labour and material and component of the programme, which was not estimated. The estimates derived from this research nonetheless point to the potentially widespread inter-regional and industrial effects of social policy.

Elkadi Hisham (1995) in University of Liverpool (United Kingdom) Studied development of an ecological approach to energy conservation measures in human settlements. The study was self-consciously exploratory, and was designed to faster learning about energy efficiency in human settlements. The analysis concentrated on construction of an appropriate framework that linked the current technical energy efficiency measures in human settlements to energy flow principles in ecosystems. The review of literature focused on difficulties and constraints which were faced when seeking to adopt man-made systems and in particular to create a better environment for man in urban areas. The
study also reviewed development of different ecological approach over last two decades. It covered a wide range of energy efficiency measures in different energy sectors in human settlements. It is therefore important to examine separately the development of technical energy efficiency measures in their selected energy sectors, as far as it is related by the literature. There newly built Egyptian cities were chosen as case studies, with the core of aggregate data requirements as measures of technical energy efficiency provided by their respective Master plans. The empirical analysis consisted of an examination of technical energy efficiency provided by their respective master plans. The empirical analysis consisted of an examination of technical energy efficiency measures and an assessment of impact of energy patterns in built environment, transportation and infrastructure. The results of examining these contemporary cities provided an evaluation matrix, for use in conjunction with multi criteria evaluation techniques. An important methodological outcome was the development of new criteria that enabled construction of a priority matrix using nine energy flow principles derived from examination of energy flow characteristics in ecosystems and from the laws of thermodynamics. This priority matrix is applied to the evaluation matrix, with respect to multi criteria evaluation technique, to provide an appraisal matrix. This describes the relationships between energy ecological principles and the three contemporary cities for purposes. Adoption of ecosystems into man made systems explains how actual energy conservation measures were provoking responses out of substantially unexplored complex systems. Main conclusion of the ecological approach, which was derived from the appraisal matrix, showed
that the question of energy expenditures or even using more renewable energy resources but, more importantly, to achieve better integration of energy patterns in human settlements and the more efficient use of these resources. Reduction in energy demand will not sustain growth in the long term while using more energy in an efficient system may result in the development of a sustainable future.

Watts James Brian (1996) in Vanderbilt University offered evidence that crisis may cause American judges to become more tolerant of administrative power. The theory of executive prerogative maintains that crisis may justify political power. Independently of and, at items, in conflict with law. Applied to administrative agencies, a variation of this theory holds that crisis may justify extra legal or illegal bureaucratic actions. In items of emergencies, judges may feel justified in giving an extra margin of difference to administrative agencies. Existing research indicates that although the progrative theory has never been expressly adopted by the United States Supreme Court, there is good reason to suppose that crisis have positively influenced judges in three review of emergency powers claimed by the President and the Congress. So far, however the administrative variation of this theory has received only tangential support. Direct evidence of a link between crisis and judicial tolerance of administrative power is not available. An examination of voting by the judges of the United States Court of appeals for the circuit of the District of Columbia before, during, and after the energy crises, supported the proposed relationship. The judges and the court as a whole became uniformly more differential in their review of administrative energy decisions at a time while the rates of difference in non-energy
cases remained relatively sable. The voting of four of the eight judges studied is statistically linked to the crisis, with the crisis independently explaining at least 10% of the variance in each case. Two of these four judges restricted their heightened difference to the initial phase of the crisis; the other two judges were affected from extended period. The theory of administrative prerogative is now linked statistically to American judicial behavior.

Poyer David (1997) of State University of New York analyzed demand energy demand in black households within the context of a complete demand system. The hypothesis of structural difference in residential energy demand structure between black and other household was tested. Along with structural analysis of demand, this thesis gave a historical review of residential energy consumption in black households. Most of the analysis is based on recent household data provided by the U.S. Department of Energy. Energy consumption and expenditure by fuel-type, economic data, household data and demographic data are included in these files. Formally, energy demand is studied within the context of two stage, budgeting framework, where total residential demand is first determine and where is systematically allocated between electric and non electric energy. Within these framework energy demand is analyzed along two lines, how household preferences, and demographic and household factors influence energy demand. The comparison of residential energy demand in black and other household indicates a statistically significantly difference in the two structures.

C. J. Marquand, J. C. McVeigh and S. Sehgal (1998) conducted a study to identify the reasons why the cost of renewable
energy technologies has decreased significantly over the last twenty years. The other aims of this paper were to examine how governments and the private sector are involved in the scheme of things, and to reason how the dissemination of renewable may best be carried out. Rural areas of developing countries have long been recognized as the places where it may be cost-effective to harness renewable energy sources for power and subsistence energy requirements. However, their utilization still remains at a relatively low level. The aim of this paper was Private participation is becoming increasingly important in the power sector, particularly with all the renewable energies, and a possible role for multinational oil companies in the potentially huge ‘renewable’ market, which has been identified over the next two decades, is discussed.

Jeff Johnson (1998) in his paper discussed that after decades of life support, makers of photovoltaic electrical generating systems today are brimming with work orders and optimism. In 1997, their sales grew by nearly 40% and were expected to do so again in 1998. Companies that have long operated are making profiles, and worldwide demand now exceeds manufacturing capacity. Thus, companies are expanding or building new factories around the world and in the United States. The U.S. Department of Energy estimated that by year’s end companies operating in the U.S. will have made capital expenditures to nearly triple the production compared to 1996 and capacity will have grown from 50MW in 1996 to More than 140 MW in 1998.

S.M. Hasnain, S.H. Alawaji and U.A. Elani (1998) observed that a considerable amount of work has been done for developing solar energy technologies but relatively little attention has been paid on the
role of solar energy education. The growing consumption of limited reserves of fossil fuels and their impact to the environment have raised global interest in harnessing solar energy. Proper knowledge of solar energy is lacking in many levels of society. Recently, the Energy research Institute (ERI) of king Abdul Aziz City for Science and Technology (KACST) had conducted a survey on the availability of solar energy education program around the world. It gave an overview of current status of solar education program available around the globe and also highlighted importance of energy information network for solar education program.

J.M. Jefferson (1998) found despite the recent encouraging signs of interest by major industrial firms in developing renewable energy sources and technologies more quickly and on a large scale, the 1990s have so far on balance given little grounds for optimism. This is because of the slowness of effective policy developments in the wake of lack of real public support and commitments which has increased pessimism in relation to: prospects for raising the efficiency of energy use quickly; prospects for expanding renewable energy resource utilization quickly; and curbing greenhouse gas emissions and mitigating climate change. Further discussions on these issues are presented.

Kathryn Ray & Joan Day (1998) have found that students are increasingly expected to use electronic resources while at university. Studies were undertaken to determine the level of use of this type of resource, how students feel about various issues surrounding electronic resources and whether attitudes change dependent upon subject studied. 317 students across three universities completed questionnaires to
determine level of use of various electronic information resources; ways in which they felt electronic resources had hindered or improved their academic career; if they perceived themselves capable of using the resources; and various methods employed to acquire the skills necessary to use the source. 155 students were questioned as part of a larger study IMPEL2, investigating the Impact on People of Electronic Libraries, supplemented by 162 students, questioned as part of an MA Dissertation, using the same methodology.

Richard P Walker, Ward C. Marshall and Brian Champion (1999) discussed positive experiences associated with the Central and South West Corporation (CSW) Renewable Energy Project along with strong customer support that has led CSW to incorporate additional renewable resources into its generation mix. CSW has established a new business unit whose goal is to identify the most cost effective source of renewable energy and to determine how best to integrate them into our resource mix. This is being done in anticipation of federal or state mandates requiring increased use of renewable energy and/or increasing markets for renewable energy driven by environmental considerations related to the use of fossil fuels.

J.L. Kolar (1999) discussed that our dependency on fossil fuels is already depleting world supplies of coal and petroleum while increasing greenhouse gas emissions. Most assuredly, the ability of alternative energy, described in this article as biomass, hydrogen, wind, solar, and geothermal power, to complete and even integrate with fossil fuels will depend on several important variables: First, developing, as well as developed, countries must be willing to direct long-term public
and private funding towards innovative energy technologies by increasing research and promoting public education. Secondly, the "bottom line" economics associated with alternative energy technology must clearly show a positive cost/benefit ratio. Revenues and not deficits are paramount to the sustainability of alternative energy. Lastly, many experts argue for the environmental benefits of alternative energy by way of carbon reductions. The 1997 Kyoto Global Warming Treaty requires the United States in particular to reduce carbon dioxide emissions from fossil fuel burning by 7 percent below 1990 levels. While many experts argue that reactions to global warming and the alternative energy benefits anticipated because of them are fiscally irresponsible and not worth the billions of tax dollars intended, we can be assured that a business-as-usual attitude will continue without increased government and public support.

A project was supported by the European Commission (1999) to promote the uptake of tri-generation by the tertiary sector in the EU member states allocated around the Mediterranean Basin, i.e. Greece, Italy, Spain and Portugal. In addition, the propulsion of this promising technology was assisted via the dissemination of information on it in the wider geographical area of Mediterranean, e.g. Cyprus, Malta, Morocco, Tunisia, etc. The project achieved its objectives through a survey on the development status in the tertiary sector of the four Mediterranean countries. Aim of the study, followed by the implementation of a wide dissemination strategy for the promotion of the generated results and included production of several information tools documenting the consolidated survey data, launching of a web site and circulation of e-bulletins, press promotion, organization of a series of national workshops
to announce the project results, etc. In spite of the recognized advantages and significant existing market potential, there are some barriers to the higher penetration of this technology in that sector in all those countries, being these obstacles of different nature - economic, technical and other (legal, administrative, political/institutional, organizational, etc.) and not quite the same in all countries. Because of this, the strategies for removal of those barriers must be, in a general way, different from one country to other, according to the specificities/barriers of each country. Even so, based on the conclusions for the individuals strategies in each country, it is evident there are several common measures which appear to be applicable in most countries of the region. It can be stated that for those common measures which are of high priority and relate mostly with tackling economic and organizational barriers (e.g. review of electricity and gas tariffs, financial support - promotion of innovative financing schemes, improvement of administrative/licensing procedures, and needs of awareness raising and dissemination campaigns, as well as defining clear strategic goals.

The Tata Energy Research Institute (TERI) report (2000) of Indian Energy Sector Mentioned electricity as key to economic development for any country. The study had been undertaken in select 100 developmental blocks in different states of the country. During the last five decades, the demand for electricity has increased manifold in India, primarily due to the repaid rate of urbanization and industrialization. The conventional fossil fuel resource for power generation are fast depleting and there is a growing concern over the environmental degradation caused by conventional power plants. Against
such implications, power generation from non-conventional resources assumes greater significance. Among the various renewable energy sources, biomass conversion technologies appear to be one of the best suited for conversion to shaft power/electricity. To tap the potential of various renewable resources of energy, a variety of technology dissemination programmes are being implemented by the government in active collaboration with NGOs (non-governmental organizations), like TERI. In the last two decades, complexities in rural energy planning have been seriously considered and linked with overall development planning by decentralized planning. Programmes are being implemented at block level, such as the IREP (Integrated Rural Energy Programme), which was coordinated by the Energy Cell of the Planning Commission. The MNES earlier started with village-level planning and implementation of Projects. Later, it attempted to develop a methodology for district-level energy planning in select districts of the country. In order to be more effective in implementation as well as administration of energy activities, the MNES later chose to devise energy plants at block level.

Devin Ramphall (2001) in Pennsylvania University undertook a study that over the past two decades rural development had been a major concern for Third World Government. Yes most of the attempted rural development initiatives have failed. A major cause has been the deteriorating rural energy situation, characterized both by growing shortage of traditional fuels (primarily fuel wood, charcoal, animal dung and agriculture residues) and the rising cost of economical fuels (mainly kerosene, diesel and electricity). These include centralized rural electrification, policies for improving rural energy end-use efficiency and
technologies based on renewable energy resources. Yet again there have been many outright failures. These failures can be attributed to deficiencies found at several levels, in the rural energy planning approaches which have been adopted. At the highest level, there are flaws in the overall top-down development planning framework, within which rural energy planning has been practiced, at the intermediate level there are limitations in the philosophical approaches used in the planning of rural energy projects themselves and at the lowest level there are weakness in techniques used for rural energy project evaluation. An alternative model for Third World Rural Energy Planning was proposed, based on theory of multi criteria evaluation, this new approach remedies several defects of past rural energy planning approaches. It is predicted on a bottom-up paradigm of development planning and uses a rural energy evaluation technique which was very different from now dominant cost benefit approach. New rural energy-planning model was operationalized for rural Kenya. Using household data from rural energy survey of Kenya six households were selected representing three different ecological zones and several different socio-economic groups. Their energy decision-making behavior is then analyzed for several sets of assumptions. Resulting energy decisions were found to be quite similar to recommendations made in literature for planning in other Third World resource sectors.

Rene Karottki and Gunnar Boye Olesen (2001) had observed that woman and children are the big winners in India where every year 2 lakh families turn away from the traditional fireplace and have a biogas plant installed to provide energy for cooking and lighting. A
smoke-free and ash-free kitchen means women are no longer prone to lung and throat infections and can look forward to a longer life expectancy. In rural areas, where there is generally no electricity supply, the introduction of biogas has given women a sense of self-worth and time to engage in more activities outside the home. Dung is no longer stored in the home but is fed directly into the biogas plant, along with toilet waste. As a result, standards of hygiene have improved, and the vegetable patch has gained a top quality fertilizer that guarantees a better crop. More than two million biogas plants have been built in India so far. Almost two lakh permanent jobs have been created for male breadwinners of Indian families. With a potential market for 30 plants attached to households with three cattle or more, the social and environmental advantages of biogas are only just beginning to be explored.

Pirkko Kasanen (2002) of TTS Institute Helsinki researched the functions which connect or separate the technical possibilities for energy conservation and the users of technology—as consumers or in some other roles. Most of the funding for the programme came from the Ministry of Trade and Industry, and it was coordinated by TTS Institute. The programme was organized in four somewhat overlapping subject areas of Households and residential buildings, Municipalities, companies, organizations, Follow-up and effectiveness of measures and Adoption of new technology and new methods. The programme consisted of 26 research projects. As a summary we can say that it is vitally important to choose the correct measure and correct step for influencing energy consumption. The level of general management in organizations is of
great importance, even if the actual energy consumption mostly happens in the sphere of concrete routine activities. At the general management level, the overall goals of the organizations are set and strategies are designed. Energy efficiency should be included on this level. Clear and ambitious efficiency and other quality targets in building, renovation and maintenance challenge planners to find the best and most cost-effective technologies. Monitoring of energy consumption and its changes over time is of vital importance. The information should be fed back into a process that makes decisions about investments, renovations and incentives to personal. Billing according to use should be arranged. The life cycle costs of investments should be faced by the same organizations that makes investment decisions, to avoid inefficient energy decisions. Educated and demanding customers and residents can also encourage organizations to adopt energy efficient strategies. The consistency of the energy efficiency goals, strategies and instruments starts from government policies. Climate policies set the overall challenge. In order to communicate this challenge to various organizations, the Finnish Ministry of Trade and Industry has a policy of sectors. The agreement should be the obvious starting point of an organisation’s own energy relevant strategy.

Anil Misra (2002) of Tata Energy Research Institute (TERI) in his paper presented a critical analysis of the renewable energy education (REE) since its beginning in India, and reports the lessons learnt during the last 20 years. It suggests strategies to make the REE effective in providing better life to millions of people by ensuring consistent and integrated education, and, motivating the policy makers. He suggested
three-pronged strategy to make REE effective in enhancing the quality of the life of a large number of people in India, and other countries with similar characteristics i.e. Preparing the young for transition, and Motivating the policy makers for transition. The students at primary, secondary and senior secondary levels ought to be told the proper comparisons between renewable and non-renewable sources, and the merits and demerits of either. They also need to be made aware of the sacrifices and changes in the life-styles to promote RE, and the limitations of the use of rather than falsely promising them the sky. Preparing the required manpower for transition calls for the development of comprehensive curricula, which should be inter-linked to subjects taught at different levels, and integrated with other disciplines. A careful attention has to be given to synergetic inputs for both energy and environment education. This aspect of REE is particularly important to all the energy resource technology combinations to be environmentally sustainable. Motivation of the policy makers assumes utmost importance in view of the fact that only a favorable policy regime can help in establishing the previous two assignments. Policy makers motivated through debates, short-term courses etc. can frame conducive process and environment to provide attractive business to manufactures, suppliers and financial institutions.

Dr. Yogi Goswami (2002), of University of Florida in his paper described a brief history and the status of solar energy education. The energy awareness in the early 1970s led to a concerted effort in the research and development of solar energy applications. Solar energy education followed the R&D effort at the advanced college level.
However, the R&D effort showed down in the mid 1980s and solar energy education at the college level followed that trend also. Over the last three decades developments in solar energy applications have made it possible to use solar energy for most of our energy needs and even some environmental needs. However, despite the worldwide awareness of environmental degradation, the present public policy does not favor the use of solar energy over conventional fuels. Also using conventional financial tools, many solar energy applications do not appear cost effective. Therefore, there is a need to educate the public policy makers, the financial professionals, and the general public. This presents an opportunity to develop educational materials, short courses, seminars, and the like, to educate the public policy makers, and financial professionals who are extremely important to increase the use of solar energy yet least familiar with it. School children must be educated about the intimate relationship of solar energy use and clean environment to create a positive atmosphere for the future use of solar energy. There is a great deal of solar energy educational materials for K-12 education that has been developed in different part of the world. Advanced information technologies can be used to compile and make this material available throughout the world. The International Association of Solar Energy Education (IASEE) can play an important role toward this objective.

Kiljunen Pentti (2002) of Department of Local Government Studies, University of Tampere has studied the attitudes of the Finish public towards energy policy. The respondents' conceptions, opinions, beliefs, assessments, attitudes and knowledge about various energy issues were studied by presenting several statements about energy production
should be developed in Finland and how important they regarded the following factors connected with energy production to be: price, non-polluting energy, availability, domestic energy sources, safety and production reliability. Moreover, the respondents were asked whether they would prefer nuclear power or coal and who has real power in the decision-making regarding energy policy. Finally, the respondents’ views on what kind of influence the building of new nuclear energy reactors or giving up the use of nuclear power would have on the Finish society. Background variables included, among others, gender, age, size of the municipality, region, occupation, education and political leanings. The participation of teachers in policy-making development and decisions has demonstrated the importance of understanding interrelationships between issues. Teachers were able to generate philosophical positions which helped them make informed decisions by connections between economic, environment, energy, and political issues, social studies and science. The teachers can also use these positions to facilitate classroom instruction and improve student comprehension.

Sudderth Patricia (2002) conducted a study to ascertain the energy knowledge and energy attitudes of selected Eighth Grade students. The sample consisted of 1,074 Eighth Grade students from the 16 administrative units in the south-west educational region of North Carolina students completed a sixty-item knowledge instrument and a 44 item attitudinal assessment. The study determined by the step wise regression procedure which independent variable (race, sex, reading level, teacher knowledge and attitudes, population density and size of school) either singularly or innocent, significantly increased the dependent variables.
(energy knowledge and energy attitudes) of the selected students. In addition, data was analysed using Pearson Product Moment coefficient of correlation to determine if there was a significant relationship. The results revealed a low level of Energy knowledge. Sex was a significant predictor and males had better energy knowledge. White students had a higher mean score than black students although race was not significant predictor for energy knowledge. The overall mean tended to indicate a less than favorable attitude towards energy conservation. The best predictor for energy attitude was the CAT scored with higher reading levels indicating attitudes that were more positive. Population density also was a significant predictor for energy attitudes with heavier populated areas indicating more positive attitudes. Sex was not a significant predictor of energy attitudes. However, females mean scores tended to be more positive than males. Race was not a significant predictor of energy attitudes. However, the analysis showed that white student’s attitude tended to be more positive. Teacher’s knowledge and attitudes were not significant variables for predicting students, energy knowledge and energy attitudes. There was insignificant relationship between student’s energy knowledge and energy attitudes.

**The Ministry of Non-Conventional Energy Sources.**

Government of India in its report (2003) has outlined the need to develop baselines for Biomass, Bagasse cogeneration, Wind Power, Small Hydro Power, Solar Photovoltaic. Waste to Energy etc. sectors for grid connected as well as off grid projects. The overall methodology would be in line with the decisions of CDM Executive Board about the selection of baselines. Further, the baselines would be developed for three main
categories i.e. grid connected renewable power projects, off-grid renewable power projects and non-power applications. The outcome would be, Discussion of conceptual issues related to baselines for renewable energy projects in India, Baseline estimates for Biomass, Bagasse cogeneration, wind power, Small Hydro Power, Solar Photovoltaic and Waste to Energy (WTE) etc sectors under various scenarios, Sample calculations and formulae for each of these sectors, and Comments on the baselines related issues of monitoring and verification protocols.

**Caroline Heijne** (2003) of Centre for Sustainable Energy, U.K. conducted a research work to look at the current Energy Matters programmes and focus on the effect of Energy Matters in London programmes. on energy efficiency activity in schools and homes of participating pupils. This included both behavioral changes, to reduce energy consumption, and installation of energy saving measures. From interview sessions with school staff and pupils, and telephone interviews with parents, it could be concluded that Energy Matters has a positive effect on reducing energy use in participating schools and their pupils homes. There were specific findings that provide signposts to achieving best practice in school energy education and management. The framework for any guide world highlight an inclusive approach by schools working in this area. The involvement of representatives from a range of the groups of a school's community, teaching and management staff, governors, pupils and parents in plans and actions aimed at energy saving. A positive approach to the empowerment of pupils and their involvement in school management, for example, through a school council. Use of energy education materials which highlight the effects of
energy use, and the benefits of energy saving actions. It was valued for its focus on actual energy use in the home as a basis for the educational work and links building related programmes, such as health and safety inspections or routine maintenance.

Thus, a number of researchers have been made in this area in the past, but the results are neither stable nor uniform. Larger generalization over these studies have not been possible. Hence, this researcher was motivated to undertake a fresh research in which he has tried to relate the attitudes towards energy education with alienation and academic performances of the students.