REVIEW OF RELATED RESEARCH

This chapter describes the related studies on Life skills and Environmental education. The related literature helps to advance the frontiers of knowledge and to gain insight into various aspects of the problem under study. It endorses the effort of the investigator in formulating a framework for the study, developing the methodology, constructing the tool for data collection and planning the analysis of data.

3.1 Life Skills Education

3.1.1 Studies carried out Abroad

Nejad (2010) conducted an experimental study on the impact of life skills training on self esteem, mental health and assertiveness among students of Boosher’s high schools in Iran. Personal Data Sheet, Mental Health Questionnaire, Self-esteem Questionnaire and Assertiveness Questionnaire were the tools used for the study. The results revealed that the life skills training were effective in enhancing the mental health, self esteem and assertiveness among the students in the experimental group.

Anderson and Moore (2009) investigated the impact of life skills training program on school aged children and adolescents. The main goals of the program are to teach prevention-related information, promote anti-drug norms, teach drug-refusal skills, and foster the development of personal self-management skills and general social skills. The research design was quasi-experimental and exploratory in nature. Results indicated that the life skills training program was effective in developing self management skills.

Louis (2008) in his conceptual paper suggested the teacher education programme should include the study of life skills, then only student teacher can perform various roles such as knowledge creator, facilitator of learning, class manager& resource generator, assessor and role model.

Hartley (2007) opined that Life Skills training helps to reduce the problems in the workplace. As a proactive measure among the employees their skills can be put in place or enhanced to prevent them from developing problems.
Slicker, et. al. (2007) conducted a study among 660 university freshmen (mean age = 17.9 years; 68.2% female; 86.5% non-Hispanic white) regarding their perceptions of their parents' parenting behaviours and their perceptions of their own life-skills development. The parenting style index consisted of the two parenting style dimensions: responsiveness and demandingness. The Life-skills Development Inventory-College Form was used to measure life skills. Simultaneous regression results indicated that parental responsiveness significantly predicted life-skills development in all four domains even when age, gender, and socio-economic status were taken into account; whereas, parental demandingness was not a significant predictor in any of the four domains of life-skills development. The results of this study suggest that positive life-skills development in older adolescents is related to having been reared by a parenting style high in responsiveness.

Junge, et. al. (2006) suggested that life skills give children the tools they need for perceiving or responding to diverse life situations and achieving their personal goals. Participation in quality afterschool programmes, frequent interaction with competent adults, and participation in programmes using experiential or co-operative learning have all been found to contribute to children's social development and academic success. It is possible that life skills development is the processes through which these programme features contribute to child development. They examined the development of life skills within a sample of kindergarten through sixth grade students enrolled in four-H Afterschool Programmes, which utilise experiential and co-operative learning activities and provides interaction with competent adults. Results of retrospective pre/post-surveys indicate that children enrolled in the programme showed life skills gain over time, and that gains on specific life skills differed as a function of age, gender, and ethnicity.

Elias and Kress (2005) discussed a classroom-based social decision-making intervention for health promotion and life skills development. The social decision-making approach brings together social-cognitive, affective,
behavioural, and social relationship areas with critical thinking skills important for academic achievement. These skills are the same ones needed to promote children's health and prevent substance abuse and related health-compromising behaviours. As such, social decision-making provides an approach to health promotion that enhances coordination among classroom and health education personnel. The middle school years, a time of increasing risk for negative health-related outcomes, were examined as a key period for intervention.

Bender and Lombard (2004) defined Life Skills as the skills, insight, awareness, knowledge, values, attitudes and qualities that are necessary to empower individuals and their communities to cope and engage successfully with life and its challenges. He opined that through life skills training one can invent new ways of doing things, challenge conventions and move forward no matter what the rate of change.

The authors Shechtman, Levy and Leichtentritt (2002), evaluated outcomes and implementation processes of teacher training in the life skills training programme in Israel. It is an education programme that focuses on life skills in four major areas: (1) identity development or purpose in life; (2) problem solving or decision making; (3) interpersonal relationships; and (4) physical health maintenance. Participants included three groups of teachers (N = 214): (1) teachers who did not receive training; (2) teachers in their first year of training; and (3) teachers in their second year of training. Results indicated that teachers with two years of training had significantly higher scores on work environment and self-efficacy measures than did teachers with less training. The discussion highlights the need for educators to allow enough time for training teachers in the programme.

Maree and Ebersohn (2002) reported that life skills training is designed to facilitate and reinforce psychosocial skills, thus contributing to the development of health and prevention of social problems. Employees learn and apply new skills for living, and these skills enhance their productivity.
The study by Thurston (2002) examined the results of a life-skills management program, survival skills for youth, organized and delivered to rural youth via collaborative efforts of education and non-education agencies. The program was replicated with 10 groups of rural youth in Tennessee and Missouri (N=114). All programs were a collaborative effort of 2 or more organizations, such as University Extension, school districts, juvenile justice programs, and state human service or workforce development programs. Pre- and post evaluations of knowledge of life management concepts, self-esteem, and social skills showed that life skills programme to be effective in changing the attitudes and behaviors of rural youth. Parson, et.al. (1998) observed that the skills for adolescence programme in UK improved teacher-student relationship and teachers reported that students showed better behaviours in the classroom.

A report by Lobner (1997) on ILO Action programme on skills and entrepreneurship training for countries emerging from armed conflict during the 1996-97 provides an analysis of a variety of programmes in the area of life skills in South Africa and draws positive experiences. The report demonstrates that life skills increase efficiency and quality of work. Misner (1995) carried out an experimental study to evaluate the effectiveness of a social skills training programme and found that significant improvement in the total behavior problem scores of the treatment group, with significant effects on the child’s behaviour problems rating by their parents and teachers.

Dogra and Veeraraghavan (1994) conducted a study on the effectiveness of life skills based psychological intervention programme on children with aggressive conduct disorder and found that experimental group reported significant changes in the post-life skills treatment score in areas like adjustment to self, home, school and reduction in conduct disorder. Tolan and Guera (1994) analysed the reasons for adolescents violence and way to reduce it and found that life skills based education reduces the chances of young people engaging in interpersonal violence.
Reed (1994) conducted an experimental study to find out the impact of life skills based structured learning therapy on depression among students and noted that structured learning therapy based on life skills reliably reduced depression and improved the level of functioning of boys in treatment group. Hudley and Graham (1993) structured the effectiveness of an intervention programme to reduce peer directed aggression among boys. Results revealed that experimental group subjects were rated less aggressive by their teachers and were found less likely to presume hostile intent by peers in hypothetical and laboratory simulations of ambiguous provocations.

Tobler (1992) opined that life skills based education programme that incorporate the refusal skills such as assertiveness is the most successful interactive programme for skill development. Caplan, et. al. (1992) carried out a experimental study to know effectiveness of life skills based intervention programme on social adjustment and alcohol use among inner city and suburban young adolescents and found that the experimental group who got life skills based intervention programme improved in their impulsiveness control.

Elias, et. al. (1991) carried out a six year longitudinal study on the outcome of a primary prevention and life skills programme in elementary schools and found that overall levels of prosocial behavior of children increased with a decline in negative self destructive behaviours. The life skills programme promoted positive social adjustment and improved academic performance and reduced the chances of young people engaging in delinquent behaviour.

Mize and Ladd (1990) investigated the effectiveness of life skills training based on cognitive – social learning approach with low status preschool children and found that life skills education prevented peer rejection and the students have improved the life skills like empathy, self awareness etc and bullying among adolescents.

Paul, et al., (1990) investigated children’s performance of practical life-skills and stated that the acquisition of practical life-skills is a domain of child competence that has received little research attention. Information on children’s
knowledge and performance of 20 life-skills was obtained from children aged either 8-9 or 15-16 and from one parent. Parents and children generally agreed on children's abilities at significant levels. Among younger children, life-skills competence was significantly associated with a measure of parental attention, parental loss, and maternal employment. Among adolescents, life-skills competence was significantly associated with maternal employment, family size, the frequency of family activities, and parental education. Life-skills competence was generally not associated with measures of academic competence.

Himsl (1973) observed that Life skills, helps problem – solving and effective behaviour change through choices of action. It invokes the exercise of spiritual intelligence when problems of right and wrong arises and when decisions about moral course of action are to be made.

3.1.2 Studies carried out in India

Pereira and Krishnan (2011) analysed the life skills of secondary school students in Kerala. Normative survey was used for collecting data and sample consists of 230 VIII\textsuperscript{th} & IX\textsuperscript{th} standard students of 8 CBSE schools who were selected through random sampling technique. Tool used was life skills attribute schedule covering four areas decision making skill, problem-solving skill, critical thinking skill and stress management skill. The results revealed that above average level of life skills were present among the CBSE secondary school students, gender has no influence on the life skills of students. The students from rural area have more life skills than those from urban area. There was significant difference between life skills of secondary CBSE students who were learned through activity oriented and conventional lecture method of instruction. The students who receive activity oriented instruction showed more life skills than that of students who receive conventional lecture method of instruction.
Meena (2010) emphasized that life skills help the individual to move with right step to achieve the final level of need self actualization as discussed by Abraham Maslow, in his discourse on hierarchy of human needs- Physiological, safety, belongingness/social affiliation, self esteem and self actualization.

Malayankandy Usha (2009) observed that the schools should incorporate components of life skills education to train young minds to combat stress and to empower young people in challenging situations. Participatory approach is the most effective method of teaching that should be used in life skills education formal approaches. One strategy for LSE could be to bring positive messages about people and how they integrate into the ordinary curriculum. That would require working with curriculum and textbook writers on making supplementary reading books focused on life skills.

John, Jessy (2009) investigated the significant levels of changes that a life skills development programme brings forth in the behaviour components and problem behaviour of juveniles in juvenile homes. The objective of the study was to find out the impact of a life skills development programme on behaviour and problem behaviours of juveniles in juvenile homes in Kerala. Sample consists of male juveniles in the age group of 13-17 who are institutionalized in the juvenile homes run by Social Welfare Dept of Kerala. The study was implemented in 4 stages. First stage- need assessment and adaptation of most suitable life skills development programme for the juveniles. Second stage- Pre-testing was done on both groups with respect to dependent variable- behaviour components and problem behaviours. Third stage consisted of implementation of life skills development programme. Experimental group was imparted with life skills development programme. Significant positive change has occurred in the assertiveness behaviour of the juveniles in experimental group after the intervention and achievement motivation of the experimental group improved significantly. Experimental group juveniles decreased in their impulsiveness. It is found that personality problems of experimental group juveniles reduced significantly. These
responses throw light on the fact that they have started to practice the life skills, the development of which was aimed through active practice and which is now echoed in more cordial and productive relationships. Outcomes of FGDs show that the juveniles have improved their knowledgebase about life skills and have started to practice it in their interpersonal relationships in dealing with the day to day decisions of life.

Chaudhary, *et.al.* (2008) conducted a research on implementing a life skills program for adolescent girls from a low-income context with specific focus on developing self-awareness, self-esteem and confidence along with communication and decision making skills and to inculcate gender awareness and sensitivity. An action research method was employed to impart life skills training to a school going group of adolescent girls. A pre-test and post-test design was adopted to assess the impact of the life skills intervention program. The program was thus implemented with girls (N=33) of higher secondary section, in the age group 16-to-17 years in Vadodara city, India. The tool used was a self-administered questionnaire, comprising of open-ended as well as close-ended questions. These questions were drawn from the domains like self concept, self esteem, decision making, gender awareness and assertive communication. Data collection for the pre-test was done and the post-test data was carried out a week after the completion of the life skills intervention. The study has shown evident changes at the level of understanding among adolescent girls. The program created an understanding about the gendered practices of socialization influencing individual roles and responsibilities and restricting progress and self-growth. They understood about assertive communication and realized difference between the aggressive and assertive communication.

Madhu (2008) emphasized the importance of life skills based education in his article on relevance of life skills based education. He opined that life skills based education helps to empower children and young adults in challenging and difficult situation. It enables to acquire knowledge, develop attitude and skills, which support the adoption of healthy behaviours. It makes
the learner aware about various types of risk taking among adults. Its major aim is to help students develop the personal and social skills necessary to live in harmony with others and to behave in positive and caring ways that respect basic human rights. The life skills education enables the children to learn to cope with emotions, stress, disappointment and feelings of fear and suggests that education system must address these vital issues through life skills education approach because it can improve the life of millions of children.

Padmanabhan, et. al. (2003) carried out a project on adolescent life skills development in Azinagar and Kanakamamidi villages in Anthra Pradesh. The result revealed that life skills development intervention conducted among out of school adolescents improved their self confidence, assertiveness and communication skills. Rao (2003) opined that the development of life skills is an important part of personality development, which can be beneficial for all young adults.

### 3.2 Studies carried out in the components of Life Skills

#### 3.2.1 Studies on Self Awareness

Ross and Anderson (2011) argued that heightened self awareness leads to adherence to socially valued norms, whereas lowered self awareness is associated with antinormal behavior. As found for adults, it appears that self awareness leads 3- and 4-year-olds to adhere to salient social standards. These results suggest that self -focus has a socially adaptive regulatory function from an early age.

The study conducted by Center for Advanced Human Resource Studies (2010) emphasized that the accuracy of self awareness affects the effectiveness of individuals’ information exchanges about their roles and responsibilities. As the individual gain awareness of the purpose and their individual roles and responsibilities, they achieve higher performance and are better equipped to respond to evolving demands.
Silvia and Duval (2001) advocated that environmental factors are principally responsible for generating heightened focus on one’s self. Studies conducted previously by Duval & Wicklund, 1972; Scheier & Carver, 1985 supported this finding.

### 3.2.2 Studies on Empathy

Shanafelt (2005) examined the relationship between increased personal well-being and enhanced empathy among internal medicine residents. Results indicated that high mental well-being was associated with enhanced resident empathy in this cross-sectional survey.

Rock, *et. al.* (2002) performed a qualitative study to examine the empathy in the easily aroused child. Participants were interviewed about their experience, and cognitive process used to choose responses. After completion of the bully prevention programme six students in grades 3 and 4 were informally interviewed to elicit their view of the impact of the bully prevention lessons and found that the empathy has enhanced and the bullying behaviour also reduces significantly.

Eisenberg and Miller (1998) investigated the relation of empathy to prosocial and related behaviours and the result revealed that low to moderate positive relations generally were found between empathy and both prosocial behavior and cooperative/socially competent behavior. Hoffman (1990) proposed that the most advanced level of empathy occurs in late childhood. The child has the ability to see self and others as having separate identities. By the age of 8 or 9 years the child begins to focus on inner processes and can reflect on the other person's inner experience of emotion.

Bengtsson and Johnson (1992) argued that complex cognitive activity shapes the empathetic response. The behavior that results from an empathetic response to social situations is based on a series of steps in cognitive processing. Children interpret cues, determine what their options are for behavior, and then make a choice about the action to be taken.
3.2.3 Studies on Critical thinking

Alias and Abd Hadi (2010) accomplished a study to determine the relationship between creative and critical thinking styles of post-secondary vocational students and their academic achievements. The Malay translation of the Yan Piaw Creative - Critical Thinking Styles Test (Test-retest reliability = 0.89) was used to gather data on thinking styles. One hundred and nine community college students from four Community Colleges under the Ministry of Higher Education who were undergoing work-based diploma programmes in Hotel and Catering (n=25), Electrical Technology (n=34), Computer Technology (n=30) and Automotive Technology (n=20) were the subjects in the study. The results of the data analysis show that the majority of vocational students have stronger predisposition towards creative thinking (59%). There is no association found between thinking styles and gender. However, thinking style is found to be associated with academic achievements. The study concludes that both male and female students have similar predisposition in their critical and creative thinking styles and that thinking style is associated with academic achievements among post-secondary vocational students.

Hofreiter, et.al. (2007) designed a study to increase critical thinking through environmental context. Both qualitative and quantitative methods (An essay-based assessment of critical thinking skill, a Likert- scale assessment of critical thinking disposition and qualitative interviews) were used to measure critical thinking in students. After the 15-week course, students significantly improved in critical thinking skills.

3.2.4 Studies on Creative thinking

Aboukinane (2007) carried out a study to explore whether creativity can be nurtured in an experiential learning environment at the college level. The study investigated how well process-based creativity models and construct-based creativity models reflected creative behavior in an experiential and team-based learning environment. The research design included field observations, focus group interviews, student questionnaires, and portfolio assessments.
Study participants were selected students from Texas A&M University’s College of Agriculture and Life Sciences. Findings indicated that both process-based and construct-based creativity models are good indicators of creative behavior. Further the study emphases that creativity can be fostered through experiential and team-based learning.

Wang (2007) carried out a longitudinal study which indicated that the oral assessments, presentation and group assignment increased the creative and critical thinking skills compared to essay examinations or multiple choice tests. Baker and Rudd (2001) explored the relationships between critical and creative thinking. Results from this study suggested that the two constructs critical and creative thinking are not closely related. Preliminary findings of this study suggested that educators must prepare specific curriculum that stimulates creative and critical thinking separately.

The study by Ainon Mohd & Abdullah Hassan, (2000) also shows that there is a relationship between creative and critical thinking styles with academic achievement. This finding is consistent with that of Toth & Baker, (1990), Wallach & Kogan (1965) and Yamamoto (1966) where higher score on creative thinking corresponded with better performance on academic achievement. Helgeson (1993) suggested that there are three ingredients to teaching critical and creative thinking to children through the content areas: using relevant, real world issues; providing structure to solve problems and organize information, and a nurturing classroom environment. This thinking parallels many of the suggestions mentioned in article on fostering creativity in the workplace. The environment must be supportive of the process.

3.2.5 Studies on Problem solving skill

Mohamad and Heong (2011) carried out a study to determine the relationship between students’ learning styles and problem solving skills among students in Building Construction Course at Vocational School. This study also investigated the differences between the students’ type of learning styles and their ability to solve the problem using their creative thinking. A
survey was carried out on 68 vocational students in Building Construction Course from two Vocational Schools. The results show that the Input style dominates the learning styles of Building Construction’s students in Vocational School and manipulating idea is the dominant creative thinking elements to solve the problem which students preferred. In conclusion, type of students’ learning styles will influence how they can cater their learning to improve their academic achievement and how they can use their creativity to solve the problem in actual situation in Building Construction work.

Halizah Awang and Ishak Ramly (2008) recommended that the word “creativity” covers a wide range of different skills and if one wants to develop creative skills among students, he has to device such activities which will inspire them to change concepts and perceptions. Salami, O Samuel and Aremu, A Oyesoji (2006) examined the relationship between the problem solving ability and study behaviour among school going adolescents in southwestern Nigeria. A total of 433 students randomly selected from fifteen secondary schools in southwestern Nigeria participated in the study. A problem solving inventory and study behaviour inventory were employed in the data collection from respondents. The results indicated that the problem solving skill was significantly predictive of study behaviour.

Bettina (2002) advocated that the problem solving method of teaching incorporates problem solving activities and it places the responsibility for learning on the student. It requires teachers to move from the traditional instructional model to one that engages teachers and students as partners in learning with the teacher functioning in the role of facilitator or coach rather than leader or all-knowing authority.

Shin and McGee (2002) investigated the use of inquiry-based multimedia learning environment as a way to increase students’ problem-solving skills, especially female students in a ninth-grade astronomy course. Using a pre- and posttest design, the study used multiple choice and written essay questions to measure students’ content understanding and problem-
solving skills. The results of ANOVA conclude that inquiry-based multimedia learning is viable and effective for improving content understanding and problem-solving skills with all students, especially females.

Windschitl (2000) explored that inquiry-based activities enhance problem solving skills among students because they let students question their own observations, generate and refine hypotheses, deal with experimental data, test those hypotheses by experimentation, and evaluate evidence. The previous researches of Bybee, 1993; Collins, 1998; Kuhn, Amsel, & O'Loughlin, 1988; Moore, 1993; National Research Council, 1996 strongly supported this finding.

Many studies have shown that inquiry-based approaches produced significantly greater problem solving skills than conventional approaches (Chiappetta & Russell, 1982; Glasson, 1989; Krajcik et al., 1998). Moreover, some researchers reported that if students experienced inquiry-based approaches, their cognitive ability, science achievement, and problem solving skills improved significantly (Greenberg-Lake, 1991; Haury, 1993; Hill et al., 1990; Lindberg, 1990; Lock, 1992; McLaren & Gaskell, 1995).

3.2.6 Studies on Decision making skill

Alduaij (2012) investigated the Decision- Making Skills and its relation with gender and academic level among Business Administration College students at Kuwait University. A stratified sample of 200 Students was chosen from Business Administration College students. Results revealed that the participants had medium level in most Decision- Making Skills. They showed a high level in suggesting alternatives skills and identifying the problem skill. There were no statistically significant differences in Decision- Making Skills among males and females. There were statistically significant differences in Decision- Making Skills related to the variable of academic level in favor for the fourth year level.
David & Maiyo (2010) conducted a study aimed to investigate the level of participation of adults in decision-making. The results indicated that (95%) of the sample participate in decision-making. the results also indicated that there were no differences between males and females in decision-Making Skills.

Rizk (2002) Pointed that decision-making skills can be improved by training, also said that there were no differences between males and females in decision-making skills. Friedman (2002) opined that adolescents decisions making are complicated by the lack of adequate training on problem-solving and decision-making skills.

Dybdal and Sondag (2000) advocated the use of a teaching technique that uses pre-written scenarios or critical incidents as teaching tools, emphasizing the need for decision-making activities based in content area.

Fischhoff, Crowell, and Kipke (1999) opined that emotions are also a factor in adolescent decision-making. Adolescents who often experience strong emotions that can affect decision-making and they can be taught how to recognize the effects of their emotions. Thus, adolescents who understand the decision-making process and think through a decision may rely less on emotion.

McMorris (1999) examined the effects of cognitive development on the acquisition of decision-making skills in sports. He noted that information on the optimal time for teaching and the critical period for learning decision-making skills is lacking, but that practice does increase performance in decision-making.

Jacobs and Ganzel (1993) note that even when youth are equipped with information-processing decision-making skills, motivation to make decisions differs from adults, as the social, emotional, and developmental differences affect adolescents' decision-making ability. Baron and Brown (1991) noted that instructing adolescents in decision-making can prevent the development of poor reasoning habits and, when combined with practice, can instill better habits.
Elias and Tobias (1990) observed that making sound decisions not only assists youth in resisting pressure to engage in risky behaviors, but also fosters social skills and social awareness, and encourages them to think about consequences, decide on goals, and understand their own and others' feelings.

Mann et. al. (1989) conclude that by age 15, many adolescents have achieved a reasonable degree of decision-making competence. However, adolescents do not consistently apply sound decision-making skills to all decisions, especially when dealing with a stressful or conflict-laden situation.

3.2.7 Studies on Interpersonal relationship

Ju, Park and Jin (2010) advocated that the interpersonal skills acquired during the college years are essential in maintaining a healthy and satisfying social and work life after college graduation.

Park (2009) explored that interpersonal skills are very important to the development of college students and it is reported that Korean college students are experiencing many difficulties and are under heavy stress due to a lack of these skills. These findings supported the research finding of Song, (2008).

North and Worth (2004) found that interpersonal skills were the most frequently mentioned competency required in entry level job advertisements from newspapers in 10 metropolitan areas. Eighty percent of ads noted that candidates should have strong interpersonal skills. Similarly, they found 49% of entry-level advertisement included requirements for basic skills related to communication, including reading, writing, listening, and speaking.

3.2.8 Studies on Communication skill

Ihmeideh, Fathi M & Ahmad Al Omari Aieman (2010) conducted a study out to determine the positive and negative attitudes among 289 students of class teachers and childhood teachers' disciplines using the communication skills attitude scale in Jordanian public universities. Overall results of study revealed that the mean of positive attitude score was 4.03. The mean of negative attitude scale score was 3.63. There were no significant differences
between class teachers and childhood teachers students in their positive and negative attitudes toward communication skills. Students with grade point averages 2 and more have positive attitudes toward communication skills than students with grade point average less than 2. Senior students have high positive and less negative attitudes toward communication skills than sophomore and junior students.

Nellermore, et. al. (1999) acknowledged that recruiters’ top three criteria for evaluating candidates applying for management positions were strong interpersonal skills, communication skills, and team-oriented skills.

Mc Pherson, (1998) explored the demand of employers’ for the types of skills compulsory for candidates of various jobs. The result showed that employers in all occupational fields place greater value on employees’ communication skills than they do on their technical skills (Maes, Weldy & Icenogle, 1997; Reinsch & Shelby, 1997, 1996; Plutsky, 1996).

Maes ,et. al. (1997) suggested that communication skill is consistently identified as the most important competency in evaluating entry-level job candidates. Peterson (1997) found oral communication, decision making, and leadership were the most important competencies evaluated in hiring decisions.

3.2.9 Studies on stress management

Jenkins (2010) investigated how college students manage their stress and explored the trends if any to manage stress among various college majors. A voluntary survey was distributed to 117 upper classmen in the business, health promotion human performance, education, and music majors at Weber State University. The survey asked about different stress management techniques and the average frequency in which the students participate. Music majors showed higher frequencies of using body relaxation techniques to manage stress. Both Health Promotion Human Performance majors and music majors reported higher frequencies in using massage, meditation, and over-the-counter and prescription drugs to manage stress. These findings suggest that Health Promotion Human Performance and music major might tend to manage stress in similar ways. Among education majors, no significant trends were found.
Ratanasiripong (2010) argued that progressive muscle relaxation and/or relaxing music will reduce stress among college studies. The biofeedback, when used consistently, also helps college students learn to recognize and reduce stress.

Brennan, et. al. (2010) conducted an intervention study that focused on improving medical students’ ability to cope with this intense stress. The intervention study constituted of an eight-session stress management program for first-year medical students. Each session was interactive and focused on improving skills to manage stress. Overall, 80% of students were satisfied with the program, and 76% percent would recommended it to other students. Findings showed that the stress management program increased medical students’ awareness of their stress level and increased their ability to cope which supported resilience and decrease burnout. Another benefit of the program was that students became more aware of their stress level and therefore more able to proactively address it. The stress management programme was an effective way to help students improve their self-assessment of their own mental state.

Cheng Kai Wen (2005) investigated the sources of stress among college students in Taiwan. A questionnaire survey was conducted to collect research data. A total of 230 questionnaires were distributed, and 201 valid responses were obtained. Research findings suggested that male students feel stronger stress from family factor than female ones; students in higher grades feel more stress from physical/mental, school, and emotional factors; students who take a student loan also feel more stress from physical/mental, school, and emotional factors than those who do not.

Jacinta Njeri Kariuki (2003) conducted a study to find out the impact of stress management programmes among the public day secondary schools in Kenya. This study was aimed at assessing ways which schools help students cope with stress. It was focused on the various programms prepared by the schools and administered to the students, to help them cope with stress, focus
on the students was to find out whether they utilised these programmes, and how effectively these programmes had a positive impact on the students. The study aimed at assessing stress management programmes, with a view of strengthening and making them more effective. Survey method was used in which form four students in public secondary schools in Nakuru municipality were sampled randomly, and the research design used was the ex post facto. The study found that there is severe stress among students and it negatively influence academic performance. The researcher recommends that schools need effective stress management programmes, to enable students cope effectively with stress.

Cheng (2001) advocated that teachers and parents in Taiwan usually use academic achievement as the sole criterion for evaluating a student’s performance at school. This criterion causes double stress on adolescents. Stress from high expectations of teachers, parents, and self is usually an agony for students studying in schools.

Liu and Chen (2000) proposed that school is one of the main sources of stress among adolescents. Such stress comes from too much homework, unsatisfactory academic performance, preparation for tests, lack of interest in a particular subject, and teacher’s punishment. Parents expect their children not only to respect teachers and follow moral norms but also become elite in the future. Chiang (1999) also obtained the same findings.

3.3 Studies on Pedagogic Strategies

3.3.1 Studies on Brainstorming

Adeyemi and Ajibade (2011) investigated the comparative effects of simulation games and brainstorming instructional strategies on Junior Secondary School Students’ achievement in Social Studies in Nigeria. The study adopted a quasi experimental design (3 x 2 non-randomized pre-test, post-test control group) comprising three groups made up of two experimental groups and one control. Four instruments namely: “Social Studies Achievement Test”, “Operational Guide for Simulation Games”, “Operational Guide on
Brainstorming” and “Operational Guide for Teacher Exposition” were used with reliability coefficients of 0.84, 0.76, 0.81 and 0.78 respectively. Results revealed that there was a significant main effect of the treatment on students’ achievement in Social Studies (F(2,233) = 159.321; P < 0.05). Findings also indicated that there was a significant main effect of gender on students’ achievement in Social Studies. (F(1,233) = 20.687; P < 0.05) and finally, results showed that there was significant interaction effect of treatment and gender on students’ achievement in Social Studies.

Adewale (2008) found that brainstorming was effective in teaching mathematics and science where achievement of students was very low in Nigeria. Also indicates that students with high ability exposed to brainstorming are better achievers in Mathematics than the low ability students.

Valacich, Jung and Looney (2006) emphasized the merits of brainstorming in teaching those subjects which were the history of under achievement. According to them the major purpose of brainstorming as a teaching strategy is to foster and enhance communication skill, help to promote thinking and decision-making skill as well as foster different viewpoints and opinions. It may equally be used in all key areas of learning. However, the major limitation is that it is generally not suitable for younger levels because of the level of reasoning required in order for it to work. The teacher must equally be able to guide and give aid as necessary considering the class environment as such considerations often determine the outcomes. The group interacts in response to questions, and the instructor refrains from entering the discussion as an active participant. Students are encouraged to learn about the subject by actively sharing information, experiences, and opinions. The flow of communication is a transaction among all the students rather than recitation and response between individual students and the instructor. Available research evidence also supports the general effectiveness of brainstorming techniques compared with the traditional lecture method.
Adelakun (1997) established that brainstorming instructional technique had positively impacted on students’ achievement in mathematics and sciences. These findings are strongly supported by the researches of (Wood, Mento and Locke (1987), Adeniran (1994), Paulus, Larey and Ortega (1995).

Seamon and Kenrick (1992) discovered that brainstorming brought out the best in gifted individuals and enhanced their performance. According to Olagunju & Akinboye (1990), brainstorming was developed to produce ideas without inhibition.

Owolabi and Akinboye (1988) and Goldman (1965), encouraged the use of brainstorming technique by the teacher to ensure that some misconceived ideas are re-arranged. According to Vhovhen (1978) brainstorming technique involved the asking of carefully framed questions aimed at teaching students to find out facts for themselves and do critical thinking.

McKeachie, (1978) advocated that brainstorming elicited higher levels of reflective thinking and creative problem solving, including synthesis, application and evaluation among students. It was also evident that information learned through brainstorming generally retained better than material learned through lecture. Moreover, students often prefer to participate in brain storm rather than to be passive learners in a lecture.

Eble (1976) argued that brainstorming is an interactive teaching technique which emphasizes participation, dialogue and two-way communication among students. He stated further that it is the one in which the instructor and a group of students consider a topic, issue or problem and exchange information, experiences, ideas, opinions, reactions, and conclusions with one another.

### 3.3.2 Studies on Concept Mapping

Leauby and Brazina (1998) first introduced concept mapping in teaching college level introductory accounting. This work showed the potential effectiveness of concept mapping in learning concepts of accountancy.
Hyerle, 1996; Jonassen, et al., 1997 were observed that concept mapping is a visual learning tool that corresponds to thinking processes, allowing students to organize ideas and read, write, and think better. It also provides a technique to organize knowledge into a progressively more complex conceptual framework.

Angelo and Cross 1993 opined that concept mapping helps educators understand what students know by the process of externalizing this knowledge; it provides an observable and assessable record of the student’s conceptual schemata and starting knowledge points (Angelo and Cross, 1993).

Beissner (1992) conducted a study using empirical methods, validating the effectiveness of using concept mapping to promote higher-order problem-solving skills in 52 physical therapy and 8 athletic training college majors. In this study, regression analysis was used to compare the results on a problem-solving test (dependent variable) given to a control group and an experimental group. A control group (n = 29) studied a 2,000-word text passage using traditional methods while an experimental group (n = 29) studied the same text passage by drawing concept maps. Regression analysis showed that there was a significant difference in the problem-solving ability of the experimental group as compared to the control group. While limited, this study adds further support suggesting that concept mapping may be an effective means of improving students’ problem-solving ability, an educational outcome highly desired in accounting education.

Jegede, et. al. (1990) validated empirically the usefulness of concept mapping activities not only as a way to enhance bridge building in 10th grade biology classes to improve achievement, but to also reduce anxiety in learning. Thus, this study draws in a very important idea that concept mapping might be effective not only in the cognitive domain but also in the affective domain. The results of a control group (n = 29) exposed to traditional instructional methods for biology were compared to the results of an experimental group (n = 22) on the same instruments, but after the experimental group had been
exposed to concept mapping as the primary instructional strategy. T tests carried out on the pretest data for both achievement and anxiety showed no significant difference, leading to the conclusion that the control and experimental groups had equivalent entry behaviors on the variables. However, using a 2 X 2 analysis of variance on the post-test score, a significant difference was observed, leading the authors to conclude that concept mapping led to a significantly greater reduction in anxiety level of students (which in turn led to improved achievement).

Peresich, Meadows and Sinatra (1990) discussed the effectiveness of using concept mapping across a curriculum and across disciplines as the primary instructional strategy to improve students’ level of comprehension in basic statemandated reading skills assessments tests. In this study, 11th grade student test scores using traditional instruction and concept mapping instruction were observed and compared. Reading comprehension improved from 77.0% to a 99.2% pass rate, an improvement of 22.2%; written communication improved from 85% to a 97.5% pass rate, an improvement of 12.5%; theme writing improved from 47% to a 100% pass rate, an improvement of 53%. Particularly noteworthy about this line of research is the authors’ observations that concept mapping activities significantly improved students ability to think and work at the three highest domains in Bloom’s (1956) taxonomy (analysis, synthesis, and evaluation), where higher-order thinking occurs.

3.3.3 Studies on Debate

The merits of debate as pedagogical strategy have been analysed in a number of studies.

Paladino (2009) argued that debating triggers higher order learning, such as analysis, synthesis and evaluation. Tessier (2009) reported that the debate encourages empathy in that participants need to understand how others think. The benefits of debate include course-specific learning outcomes and enhancement of cognitive abilities.
Scott-Young and Samson (2008) opined that debate helped students learn to read critically and also write critically, which is a valuable skill for students. The ability to write effective arguments influences success of students in preparation for their future careers. It also enhanced research and writing skills.

Galloway (2007) accounted that debate helps to increase students’ open-mindedness and tolerance. Other benefits of debates included the likelihood that debaters come to realize that positions other than their own have value, and that reasonable minds can disagree on controversial issues. Darby and Kennedy (2007) have described debates as one type of active learning tool that promotes critical thinking.

According to Roy and Macchiette (2005), the debate process is still one of the best techniques for applying the principles of critical thinking, which is a crucial goal of educators from a wide array of disciplines. It also enhances problem solving and decision-making ability and taking responsibility for one’s own learning.

Huryn (1986) argued that debate experience gives the student some perception of how knowledge must be sought not only from empirical research but also from critical analysis in an argumentation format. Students learn not only how social scientists gather and analyze data, but how research can be used to support arguments and how to deal with the conflicting results often obtained.

3.3.4 Studies on cognitive apprenticeship

Seel and Schenk (2003) used Cognitive apprenticeship that sequences activities with an interest in developing a multimedia-based system to support model-based learning. Their formative evaluation of five replication studies showed that cognitive apprenticeship may be effective as a guide for the design of multimedia learning environments, with scaffolding being the weakest spot. Their findings substantiated earlier studies on integrating cognitive apprenticeship and multimedia (Casey, 1996) on computer-based coaching (Lajoie and Lesgold, 1989).
Liu (2005) studied the effectiveness of cognitive apprenticeship in teacher training. The participants were trained in cognitive apprenticeship. The study offered teachers training in a cognitive apprenticeship approach to reading comprehension then compared their behaviors with a control group of teachers who used the established curricular approach. Both experimental groups showed a change in teaching behaviors, according to their treatment group; however, the authors concluded that changing to a cognitive apprenticeship instructional approach is no more or less difficult than changing to a direct instruction approach. Because both approaches were founded in constructivist theory, the authors further concluded that their study shows that it is possible to translate new theoretical insights in learning and instruction into regular school practices.

Darabi (2005) studied the effectiveness of cognitive apprenticeship in fields such as instructional technology. Hendricks (2001) conducted an experimental study to determine whether cognitive apprenticeship was more likely to result in transferable knowledge than traditional instruction and found that the treatment group had greater post-test gains but did not perform significantly better on a transfer activity two weeks later.

3.3.5 Studies on Role play

Graves, E.A (2008) conducted a study to find out the effectiveness of role-playing as a pedagogic strategy and found that it is an effective method and students enjoyed role playing projects than the traditional methods. Further, role playing helped them to better remember information than the traditional methods.

Schaap (2005) pointed out that role-playing is more likely to promote active learning amongst undergraduate students than a traditional lecture. His study focused on using role-playing to understand political theory. By using the role-playing technique, students had a high level of energy and excitement, they were encouraged to express ideas and they were able to get immediate feedback on ideas and they thoroughly enjoyed learning.
Oberle (2004) suggested that role-playing activities help to introduce student to real-world situations. In his case study printed he followed an undergraduate college geography class through a role-playing activity and evaluated the effectiveness of the role-playing activity. The results demonstrated that the activity increased the students understanding of the topics of the project, fostered their awareness about the topic and enhanced their academic skills and abilities. Oberle concluded that how the role-playing activity is transferable to other types of geography classes and can easily be modified for high school geography classes. Further, he found that role-playing is an effective teaching method and should be used to help actively engage students in their learning.

Ringel (2004) carried out a role playing activity –mock trial and moot court in the classroom and stated that it is an extremely pedagogical tool which can be used for more than learning about the law or the judicial process and has been used in a variety of disciplines including political science, media, history, sociology, etc. The students can benefit in many ways they were - they gain self-confidence, improve their critical/analytical thinking skills and improve legal research/writing skills and gain a greater sense of empathy.

Ronald Morris (2003) also found role-playing is very effective and engages student actively in the subject and result in better learning. Morris studied his seventh grade students who completed the acting out history project and found several positive things. The first one is students feel empathy regarding events in the past when they act out the situation, and make connections between the character they play and real situations. Empathy is vital for students to feel in order to make what they learn meaningful.

Duncombe and Heikkinen (1990) used role-playing strategy to make his class more interesting. This technique allowed students to ask questions and give their honest opinions about the topic because they feel as if they are arguing with someone other than the teacher.
3.3.6 Studies on Futures wheel

Benckendorff (2008) evaluated the usefulness of futures wheel as a sustainable planning tool for tourism decision makers and researchers. The futures wheel method is combined with a grounded theory approach to capture and distil the tacit knowledge of three ‘expert’ think tanks. The evaluation suggests that the futures wheel is a useful tool for researching sustainable tourism futures but that its potential may be enhanced if it can be combined with other futures research methods.

3.4 Studies on Environmental Education

3.4.1 Studies carried out in Abroad

Bhandri (2007) did an assessment of environmental education programme in Nepal and concluded that Nepal has also realized the environmental problems and has given high priority for environmental education from school level to higher studies.

Gaye Tuncer, et.al. (2007) conducted a study to assess Turkish elementary school students’ and pre-service teachers’ environmental attitudes, and to explore whether there was a significant difference in the attitudes towards the environment of the above mentioned two groups. Data was gathered by circulating a 45-item ‘Environmental Attitude Questionnaire’ to a total of 1235 6th, 7th and 8th grade students, and 334 pre-service teachers. The results indicated that participants of this study accepted that environmental pollution is a serious problem of our times and it will not diminish in the future. Also they are aware of individual responsibilities in finding solutions for environmental problems. The findings also demonstrated that pre-service teachers and elementary school students significantly differed in their attitude towards the environment.

Ernst and Monroeb (2006) examined the relationship between environment-based education and high school students’ critical thinking skills and disposition toward critical thinking. Four hundred four 9th and 12th grade students
from 11 Florida high schools participated in the study. A pretest-posttest nonequivalent comparison group design (9th grade) and a posttest only nonequivalent comparison group design (12th grade) were used. Interviews of students and teachers were used in the classic sense of triangulation. Gender, and ethnicity, environment-based programs had a positive effect on 12\textsuperscript{th} grade students’ critical thinking skills (p < .001) and disposition toward critical thinking (p < .001). The results of this study support the use of environment-based education for improving critical thinking and can be used to guide future implementation.

McMillan, \textit{et.al.} (2004) stated that an effective and good environmental class will be explicitly value based and interdisciplinary, will teach critical-thinking skills (Fien, 1997; Newhouse, 1990). Thus, the planned course should be value based, promising to bring a change in students’ values. The point which makes such a plan factual is that there are several studies in the literature related to the impact of university-level environmental classes on students’ values resulting with positive changes.

Chan (1999) administered a postal survey on a random cluster sample of 1032 secondary school students in Hong Kong was conducted to investigate the knowledge about the environment. Results indicated that students were very knowledgeable on general and local environmental issues. The average score for environmental knowledge was 60.7 on a 100-point scale. Male students and students in higher forms were more knowledgeable about the environment. The study established a comprehensive measure for both general and local environmental knowledge with an acceptable level of internal consistency for subsequent studies.

Wouters (1997) conducted a study on environmental awareness of male and female teachers and suggested that there is no difference in the environmental awareness level in relation to gender. A possible reason for not finding any major differences in environmental education awareness in relation to gender could be due to reason that both male and female school teachers are essentially exposed to similar experiences and receive comparable educations, which is thus influence their out look towards the environment.
Fong (1994) conducted a study on environmental awareness and action at elementary school in Taiwan and the results highlighted that higher environmental awareness was due to a higher level of education.

Hausbeck, et al., (1992) surveyed approximately 3200 students from a sample of 30 secondary schools in New York and found that students scored rather low on environmental knowledge but scored very high on environmental awareness and concern. Environmental knowledge was found to be positively correlated with age, family income, gender and male.

3.4.2 Studies carried out in India

Dixit and Agarwal (2009) examined environmental awareness among prospective elementary teachers. Descriptive method was adopted and Stratified random sampling was done for the selection of the sample. Sample selected from three DIETs of UP state. 300 B.T.C. students was selected as sample. Total 260 elementary teachers were selected. Findings revealed that there is no significant difference in the Total Environmental Awareness of prospective elementary teachers. No significant residence wise difference exist in relation to Environmental Awareness of rural and urban prospective elementary teachers, no significant sex difference exists in relation to Environmental awareness of male and female prospective elementary teachers is accepted.

Das (2008) conducted a study on effectiveness of computer assisted instruction in the development of environmental awareness and attitude. Single group pre test post test experimental design was followed and purposive sampling technique was used to select the sample. 30 students in the English medium was the sample, environmental awareness scale was used as tools. The result revealed that environmental awareness was increased after the CAI treatment and there was an improvement in environmental attitude among students after the treatment with the CAI package.
Bhalia (2008) carried out a study to know the effectiveness of various teaching models in enhancing environmental awareness. Pre test post test control group design was used for the study. Lesson plans of the three methods (concept attainment model, Inquiry training model and traditional methods) are prepared by the investigator. Findings revealed that data of class VI indicated that most significant change in environmental awareness comes through inquiry training model. The second higher comes by teaching the student in traditional model. The student taught through concept attainment model were least affected. In the case of class VII, teaching the student with inquiry training found to be the most effective followed by concept attainment and least affected by traditional method. In class VIII, teaching by concept attainment has affected student the most, after that inquiry training model and least effective was traditional method of instruction.

The complementary role of formal and non formal educational agencies in environmental awareness and protection were studied by Choudhari (2008). The sample constituted 15 environment related NGOs, secondary school students and teachers from Kamrup district of Assam. The result revealed that 66.6% of teachers of secondary schools develop environmental awareness among the students by adopting some practical methods, 7% of teachers are associated with forming and conducting eco clubs. Majority 79% students shown high level of awareness and 18% students fall under average level and 3% has been placed in the low level category.

Chaudhary (2008) carried out a study on the complimentary role of formal and non formal educational agencies in environmental awareness and protection. Descriptive survey method was adopted. Sample consisted of 15 secondary schools, 15 environmental related NGOs, 570 secondary school students and 45 secondary school teachers. Two types of tools used for collecting data self-developed tools and standardized tools. Findings of the study were- 100 percent teachers help the students theoretically in promoting environmental awareness. 66.6 % teachers of secondary schools develop
environmental awareness among the students by adopting some practical method. 100 % heads of secondary schools and 100% heads of the environmentally related NGOs are in favor of NGO – school linkage in disseminating environmental awareness, knowledge and the like for the purpose of promoting an environmental – literate society.

Pande (2007) carried out a comparative study on environmental awareness among rural and urban children. Survey method was adopted for the study. Result showed that the children from the urban habituation were better aware about environment. The urban students had much better knowledge of the environment and its related problems than their rural counterparts. Both urban and rural teachers are aware of the environment and know all about its protection and preservation.

Natarajan (2007) studied the environmental status in the school and opinioned that the eco-clubs are very effective in raising the environmental awareness among students. Small group projects in environmental issues and short films on environmental protection are beneficial for raising the environmental awareness.

Kumar and Patil (2007) examined the influence of environmental education on environment attitude of post graduate students. 120 post graduate students of Karnataka University, Dharward was the sample. The tools were environmental pollution attitude scale and personal data sheet. The findings were students with environmental education background had better environmental attitude and found that there was no significant difference between male and female students in their attitude towards environmental pollution related issues.

Mishra (2006) carried out a study on environmental awareness of secondary school students with reference to their intelligence and school background. The study constituted of 297 X grade students from 15 schools in 5 towns of Orissa. One each affiliated to three bodies, one from BSE, Orissa, ICSE, New Delhi and CBSE, New Delhi were selected through random
sampling technique. Results showed that Intelligence has significant independent effect on the awareness of secondary school students on air, water, and soil aspect of environment and on overall environment but not on sound aspect of environment. High intelligent secondary school students have significantly better awareness about water and soil aspect of environment than low intelligent students. School background of secondary school students has significant independent effect on air, water, and soil aspect of environment and on overall environment but not on sound aspect of environment. Intelligence and School Background of Secondary School Students have significant interaction effect on their awareness on air, water, and soil aspect of environment and on overall aspect of environment.

Rout and Agarwal (2006) examined the environmental awareness and environmental attitude of students at higher school level. Normative survey research used in this study. The sample consisted of Class IX students and Intermediate college of Moradabad city. It was carried out on a sample of 96 students selected through disproportionate stratified random sampling. Findings were the female students of science stream have more environmental awareness and environmental attitude than that of the male students of science stream, the female students of non-science stream have more environmental awareness and attitude than that of male students of the science stream. The female students belonging to rural back ground have more environmental awareness and environmental attitude than of male students of rural background. The students belonging to urban background have more environmental awareness and attitude than that male students of urban background. The students belonging to urban background are comparatively better in terms of their environmental awareness and environmental attitude as compared to the students belonging to the rural back ground. This difference is due to the difference in the educational level of parents of urban and rural students and their approach to the media is also an important factor.
Vipinder and Singh (2006) conducted a study on environmental education awareness among 1800 secondary school teachers, with respect to their residential background, sex and subject specialization. Self-made questionnaire and t test and ANOVA were used for the study. The findings of the study revealed that teachers in urban schools were more aware about environment and its related problems than their counterparts. Male and female secondary school teachers showed significant variation in environmental education awareness, where the former group showed higher awareness than the latter, thereby highlighting sex as an important factor affecting environmental education awareness among secondary school teachers. The subject specialization of the secondary school teachers showed significant variation in environmental education awareness. Science teachers showed a higher environmental education awareness than their social science and language counterparts. Significant difference was also found among the social science and language teachers in environmental education awareness. Thus science subject teachers had higher environmental education awareness than that of social science and language subject teachers.

Mercy and Arjunan (2006) examined the environmental awareness of secondary school students. The sample consisted of 306 boys and 318 girls, the rural and the urban representation being 339 and 285 respectively. Findings of the study were-Positive and significant correlation exists between environmental knowledge and environmental attitude in the total sample, and also within the sub sample based on gender and locale. There is significant difference between secondary boys and girls in their environmental attitude. There exists significant difference in attitude among rural and urban students towards the environment.

Annapoorani (2006) explored the environmental education programmes of primary schools in Gudimangalam block of Coimbatore district. Eight primary schools in Gudimangalam were selected for the survey. Children from the standard V were chosen as sample for the study. Sample consisted of 200
primary school children in the age of 10 to 11 years, in which 98 girls and 102 boys. Tools used were Environmental awareness schedule, School environment schedule, case study. Findings revealed that the school authorities are aware about soak pit but the soak pit are absent in the school for waste water management. In all schools, the solid wastes were disposed by burning. The plastic waste were burnt inside the school campus. Majority of the school dispose off their wastewater in open field. Teachers in the schools are not trained in the environmental subject. Most of the schools do not maintain the flower or vegetable garden in their premise.

Vipindernagra and Jaswinder Singh (2006) carried out a study on environmental education awareness among secondary school teachers. Total sample of 1800 secondary school teachers was selected using stratified random sampling. Findings revealed that urban secondary schools teachers had a higher level of environmental education awareness than rural secondary school teachers. Male secondary schools teachers had significant environmental education awareness than female secondary school teachers.

Lalchharliani (2005) carried out a study on environmental awareness and attitude towards environmental education among college students. The population of the study comprised of all the first to third year degree course students, total 600, studying in Arts, Science and Commerce stream in different type college in Aizawl district. Findings revealed that the level of environmental pollution awareness of male and female college students was good. The overall attitude of college students was found to satisfactory. There exists a fairly high positive correlation between environmental pollution awareness and attitude towards environmental education among students.

Sengupta (2005) investigated the environmental awareness of students. The sample (400) was drawn from 19 schools of Kolkatta city and the district of South 24 Paraganas. The tool used was environmental awareness scale. Findings revealed that environmental awareness may not always lead to environmental action, the relationship between the two was weak, the science
group students appear to be more active and so are the suburban group students, no difference was found in environmental awareness and action due to gender and academic performances.

Lenka (2005) studied the environmental awareness among post graduate students of Kurukshetra University. Findings showed that there is significant difference in environmental awareness among the students of science, arts and commerce faculties and science students were more aware about environment than arts and commerce students. The t-ratio reveals that there exists a significant difference in environmental awareness between the science and arts students and it was in favour of science students. It may be due to science students are more aware about their environment as compared with arts students. The t-ratio of science/commerce students indicates that science students were more aware of their environment than the commerce students. The main reason for this may be the curriculum, wherein science students study a lot of topics, which are related to environmental problems, but such a chance is not available to the commerce students. The t ratio of arts and commerce students reveals that no significant difference in environmental awareness between arts and commerce and main reason for this may be that in both faculties topics related to environmental problems are not included. Both the sexes have the same environmental awareness

Kohli (2005) conducted an experimental study to know the efficacy of computer assisted, concept attainment models on students achievement in environmental science, self-concept and emotional intelligence. Two private schools of Udhmpur city of Jammu and Kashmir were selected as the sample; Total 80 students of class V were taken as population for the study. Two intact sections were selected from each school after matching them on intelligence and SES. Findings indicated that computer – assisted model and concept attainment model were found to be effective in improving the achievement, aptitude and interest of the students.
Mary and Paul Raj (2005) explored the environmental awareness among high school students. The sample for the study consists of 198 students of standard IX from 10 schools in Pondichery region. Findings indicated that environmental awareness among high School Students is above average. The medium of instruction and the locality of the school influence Environmental Awareness among Students. The type and size of the family, type of schools and types of religion do not affect the Environmental Awareness among high School Students.

Dhillon and Sandhu (2005) examined the environmental education awareness among elementary school teachers with respect to their residential background, gender and subject specialization. A sample of 1800 elementary school teachers were selected using the technique of stratified random sampling from five districts of Punjab. There was equal representation of teachers in the sample (150) with respect to background, sex and subject of specialization. The findings of the study were significant difference was found in the environmental education awareness between rural and urban school teachers with the former having greater awareness than the latter. No significant difference was observed in the environmental education awareness between male and female teachers. Significant differences were found between teachers with respect to their subject specialization. Science teachers had greater educational awareness than both social science and language teachers. Social science teachers had greater awareness than language teachers.

Pradhan (2002) carried out a study to analyze the environmental awareness among teacher trainees. The objectives formulated were to study the variation, if any, in environmental awareness among the three teaching method groups (humanities, social science and physical science) of teacher trainees and their locality. To study the variation, if any, between male and female teacher trainees having bachelors degree and masters degree in environmental awareness and found that humanities group have higher environmental awareness and teacher trainees having masters degree have greater
environmental awareness. The study revealed that there is no difference in the environmental awareness level in relation to gender. A possible reason for not finding any major differences in environmental education awareness in relation to gender could be due to reason that both male and female school teachers are essentially exposed to similar experiences and receive comparable educations, which is thus influence their outlook towards the environment.

Rosa (2002) carried out an experimental study for developing environmental awareness among secondary school students. Study was conducted on a sample of 700 students and 200 teachers from various schools from Kerala through proportionate random sampling technique. Data were collected by using questionnaire and standardized environmental awareness test. Learning package was prepared for developing environmental awareness among secondary school students. The effectiveness of learning package was tested using experimental approach. Findings indicated that there is a necessity for developing environmental awareness and to make environmental education more effective. Non availability of reference and handbooks for teachers assessed as a hurdle in imparting environmental awareness among secondary school students and that majority of the students under study have low environmental awareness. The prepared learning package is more effective than the textbook oriented approach in developing environmental awareness.

Rai (2000) carried out a study to assess the role of education and cultural practices in creating environmental awareness among people. Sample consisted of 160 people selected through purposive sampling. Findings showed that the respondents with higher level of education possessed greater awareness towards the environment. Both rural and urban respondents showed non significant difference in their concern for environment.

Tripathy (2000) carried out a comparative study of environmental awareness of school students at 10+ level. A sample of 600 students from 18 schools of six districts of Uttar Pradesh was drawn. The tool was environmental awareness inventory. The findings were the difference between
boys and girls students of Central schools found to be significant with respect to their environmental awareness. Male students were found significantly higher than girls. Environmental awareness of Arts students were found significantly higher than science students. There were no significant difference between the students studying in Central schools and other schools having same syllabus. There was no significant difference between environmental awareness of students studying in Central schools and other schools having different syllabus.

Kidwai (2000) conducted a study to identify the objectives formulated by Geography curriculum developers taking into account the recommendations related to environmental education in National Curriculum Frame Work for elementary and secondary education and analysed how far these objectives are being fulfilled by the existing Geography curriculum at the secondary stage. A purposive sample of 25 teachers and 300 students of class X was drawn. Environmental awareness questionnaire was used for collecting data. The important findings pointed out that the importance of Natural environment has been completely neglected in the existing Geography curriculum though most of the topics identified as potential infusion elements of environmental education have been incorporated in the Geography syllabus at the secondary level.

Rathore (2000) carried out a study on the scholastic achievement of children at the primary level in the environmental studies. Survey method was adopted for the study. Samples was taken 1000 children from city of Khandwa. Findings revealed that the boys perform better than that of girls studying at formal primary schools and a significant difference in the scholastic achievement of children studying at the rural and urban areas.

Nachimuthu and Vijayakumari (1993) stressed the need of environmental education for environmental protection and it definitely lead towards sustainable development.

A study by yogamoorthy (1992) stressed the need for environmentally trained teachers for environmental education. He observed that the in-service
courses do not include anything substantially on environmental education. Ravindranath and Nair (1990) studied the use of computers in the teaching of environmental education. The main objective of the study was to find out how computers could be effectively used in schools to support the teacher with the necessary information on the local environment and how instructions could be made locally specific. The main conclusion of the study is that with the availability of sophisticated gadgets like computer, class room instruction could be made more creative and challenging.

3.5 Conclusion

The related literature helped the researcher immensely and thrown light into many aspects of problem area, formulating a conceptual framework, identifying appropriate methodology, design for experimental study, tool construction and also analysis of data. The review of related literature empowered the investigator to have extensive information on the history of life skills education and various interactive pedagogic strategies which make learning more effective. The review helped the investigator to realize the importance of life skills and the need for integration in the school curriculum. It also thrown light in to the fact that the majority of researches on life skills were conducted in drug prevention programmes and HIV/ AIDS awareness programmes, counseling and mental health. But WHO (1999) reported that even though many researchers using life skills training is synonyms to HIV/AIDS awareness programme and Drug Prevention education and personality development pogramme but can be successfully imparted in areas like environmental issues and adolescent empowerment programme.

So the researcher took up this study to develop life skills among higher secondary school students by developing a module based on environmental education and incorporating interactive pedagogic strategies. Further, the researcher identified many researches on life skills education, but the researches giving concrete evidences on life skills and environmental education was found to be very rare. As far as the studies reviewed, the life skills module
developed is found to be very general in subject. So investigator interested to
design and prepare a life skills education module in environmental education.
Researches also suggest that adolescents are urgently in need of life skills
education but no attempt was made in this regard seriously. It is to be noted in
this context that CBSE has incorporated life skills education in the curriculum
in 2003 onwards but it is also not implementing successfully and teachers are
not aware of the effective ways to implementing it in the classroom. In this
circumstances investigator took up the study. The knowledge gained from the
literature review helped the researcher to design the study, to develop the
LSEM and tools for data collection.