CHAPTER III
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3.0 PREAMBLE

A review of related literature will help to give background knowledge about the area under investigation and provide a kind of broad illumination. It can give the present knowledge of the status of research in the area, which can be useful in three ways: First it can give a picture of the gaps in knowledge in the criterion fields, which need to be covered. Secondly, it can help to avoid unnecessary duplication in research; thirdly, it can show the blind alleys and risky areas, which can lead to a lot of waste of time and efforts and are therefore better avoided. Thirdly, some good researches can also provide models, which can be followed by later investigators. Fourthly, particularly in the natural sciences, where a kind of linear progress in knowledge can be clearly identified, the later researches can consciously build on existing knowledge, and start from the end-point of knowledge reached by the latest researchers.

The investigator reviewed a vast amount of earlier studies in education and closely related fields, out of which only a small proportion has been presented in the presented chapter as a representative sample. Of the functions of research stated above, the linear building of knowledge with later researches taking over from the exact point where earlier researches have left is possible only in the exact sciences. In the social sciences and in educational researches such exact articulation of the linear progress in knowledge is not possible. Some overlap is even considered necessary to provide a foothold on which the novelty can be clearly seen. But considerable overlap with the old concepts could be irritating. Care is taken to avoid this error.
It will be seen from the introduction, especially in the statement of objectives and hypotheses, that it adds some new approaches in models research. It takes an established model and using it in new ways, combining the ‘stable inquiry’ in the quantities paradigms of research with some qualitative approaches to throw more light on the model itself and explore ways in which its use can be made more effective in the teaching of languages. Hence the present study error will not simply be an unnecessary duplication of an earlier study.

Since the work of Joyce and Weil provides the basic text for Models of Teaching, some exemplars of research conducted under this framework are reviewed – the JIM models available taking off from language are covered, but a few under other families are also covered for illustrative purposes. A few studies conducted outside the Joyce and Weil framework are also covered. A small number of studies under the Joyce and Weil framework, but combining with other models were also available. These are given priority, because the study starts with the JIM framework, but goes beyond it with one extension in the direction of literary discourse analysis (because it helps to refine the value conflict analysis inherent in JIM itself) and another in the direction of history of educational ideas and practices as triggered by the term ‘jurisprudential’.

The episode analysed, Bhūmiyuvṛśe vakāśikaḥ is taken as the text for triggering value conflict. One of the issues over which the conflict of opinion is revealed is the habitat and the primordial inhabitants. Hence the theme of Environmental Education (EE) also precipitates as another area in which earlier studies can throw light on the present one.

Originally it was intended to include only empirical studies in this chapter. But since model-mixing strategies also need a model in the review chapter, good analytical researches, especially in ‘mixing’ models also seemed worthy of inclusion in this chapter.
This chapter therefore consists of four sections:

1. Studies relating to models of education à la Joyce and Weil with some priority given to 'mixed models use'
2. Studies on Discourse analysis
3. Studies in Environmental Education

In this chapter only the major sections are numbered. The logic of grouping the minor segments was difficult to establish. Hence these were not numbered.

3.1 STUDIES ON MODELS OF EDUCATION à la JOYCE AND WEIL SUPPLEMENTED BY MIXED USE OF MODELS

It is open to an innovative researcher to combine two or more models to form a rich compound model. It is also possible to combine any of these models (e.g., JIM) with a construct from elsewhere (e.g., discourse analysis from linguistics) in order to derive maximum educational benefit. Since the present investigator has attempted the compound approach indicated above she was looking for earlier literature attempting such complexes. Though she couldn't find precedence for her own specific complex, she found some studies combining JIM with other models. The first study combining JIM with STS (science, technology and societal issues) is of particular interest. STS is particularly favourable for combining with JIM because they seem to have optimal and opposite valencies. Science and technology throw up plenty of issues for debate. They offer several benefits and at the same time several hazards. Several issues in biotechnology are highly debated today. Similarly studies which justify the type of extensions which the investigator has attempted has also been given high priority, e.g., Katula's and Klinger's studies stressing the role of training in language, rhetoric and communication in order to make public issues debate education more effective.
Ronald J. Bonnstetter and John E. Pedersen (1990) conducted a study on The Jurisprudential Inquiry Model for STS (science, technology and societal issues) in the classroom. How does one teach using an STS approach? Where is the curriculum material to accomplish the task? The answer to these and many other related questions come as a surprise. For example, we may never see a transportable STS National curriculum; because by definition the material must focus on local issues and build from the roots of student interest. In addition, some of the strategies that are more effective require innovative teaching skills; that go well beyond just dispensing information. But if teachers are willing to meet the challenge, all could find themselves involved in a teaching model that will guide students to new heights of understanding and rejuvenate early teaching ideals. A properly orchestrated STS unit can be an exciting learning experience for both student and teacher.

Pederson (1986) modified the original Joyce and Weil Jurisprudential Model to create the Jurisprudential Inquiry STS model of teaching that effectively lends itself to the study of science, technology, and societal issues in the classroom. The Jurisprudential inquiry STS model approaches teaching issues by dividing a class into the issue viewpoints. Through the information acquisition strategies and classmate interactions, students present their views to class selected board of arbiters. It is the board's responsibility to listen to the student arguments in a public hearing and render a decision on the issue.

In summary, it is important to remember that STS issues are not things that a teacher can pull out of a book, they are not simply newspaper articles about issues in science, and they are not "discussing" an issue for ten minutes once a week. It is the integration of societal and technological issues that makes science content much more meaningful. The jurisprudential inquiry STS model can be used to accomplish that integration. Students must see the value of science. By using STS issues in this manner,
students see how the issue impacts them and also how they impact the issue.

William and Winslade (1995) are of the opinion that the medical school curriculum should include content on jurisprudence to empower physicians to use the law and their legal colleagues to serve patients and promote public welfare. Developing practitioner's skill and changing attitudes are seen as more important than imparting information about particular doctrines and laws.

Katula (1991) suggests that students should learn to see reading and writing as vital support for the most direct way in which citizens can express themselves and participate in public life— as public speakers. Public speaking was the primary medium for participation in public affairs at the birth of democracy in ancient Athens, and even today public dialogue or argument is for most citizens the chief means for participating in public life. But too often, public dialogue is little more than polarized or polarizing debate, with neither side genuinely listening to and learning from the other, as Ede (1991) found in an analysis of a local controversy. Language teachers can help enhance the quality of public dialogue by teaching their students how to engage in class discussions that require them to paraphrase as well as to respond to the points made by others (Katula1991). They can especially advance the cause of improving civic discourse in this country if they teach their students certain strategies for public debate that derive from classical rhetoric: to avoid logical fallacies in developing their arguments; to construct arguments that respect the truth and demonstrate an understanding of, if not sympathy with, alternative positions; and to seek common ground in debates on controversial issues (Ede1991; Katula1991). Basic speaking skills to be developed in all students according to their ability to generate their own questions about a topic they are studying (Stotsky 1987). All students must become active learners who know how to peruse their own curiosity and who can engage in independent critical thinking.
Klinger (1994) argues that the “analytical turn” in jurisprudence has undesirable consequences for both the theory and practice of law. He argues that a rhetorical view of the law sees law as an exercise in communicative praxis, reshaping the theoretical and practical contours of the law, changing patterns of communication, and opening discursive space both within and outside the legal academy.

Santhosh Kumar (2004) in his study made an effort to determine the impact of Inductive Thinking Model on the learning of Physical Science with reference to knowledge, understanding, application and retention of information levels. The results showed that the inductive thinking model is found to be superior to ordinary classroom practices followed in physical science instruction like verbal illustration and demonstration with respect to levels of learning—namely Understanding, Application and Retention of information. But it is not superior with reference to Knowledge level.

Nityananda Pradhan and Lathika Kumari Mishra (2003) explain the implication of JIM in Moral Education. “Oliver and Shaver while developing JIM were concerned with both the substance of what is taught and the method of teaching them. So if our purpose is to develop the student’s competence of independent thinking about social policy, the courses of the respective subjects have to be organized around cases. The cases must have public issues embedded in them to lend themselves readily to the jurisprudential approach. It seems that although our social studies courses deal with the values enshrined in our constitution, they are not in the form of issues and leave no room for students to take a stance. Hence, social studies courses intended to be dealt with through jurisprudential approach need to be organized around cases.

Research in moral education has identified three distinct stages of development: (1) premoral stage, when the child acts with a view to avoid
punishment and obtain reward; (ii) the stage of conventional rule conformity, when child behaviour is determined in terms of avoidance of disapproval/dislike of other; and (iii) the stage of moral autonomy, when the child is guided in his behaviour by his conscience and the principles of respect for the right of others. Kohlberg states that these stages of development occur naturally in all individuals and a higher stage of development cannot be reached unless and until the preceding stages have all been reached. The stages are also universal and occur in all people of all cultures. It seems that this model is applicable to students only when they reach the final stage of development, which is the stage of moral autonomy. It is at this stage that the students can deal with controversial issues: analyse and take a stance on public issues and act like a competent judge as warranted in JIM. Hence, this model can be successfully applied to students at high school and above stages.

In phase four of this model, Oliver and Shaver propose Socratic dialogue between students and teacher to probe the student's position. It seems to be very threatening to the less verbal students. In order to avoid this, the students of a class to be taught through JIM approach are to be formed small groups on the basis of their stand on the issue selected and asked to collectively argue the stand with another small group.

Although JIM can be effectively be applied to teach social studies courses, and the knowledge about the model throws light on how to deal with other regular subjects of the school curriculum; co-curricular activities like NCC, NSS, self-government etc., and organize the very atmosphere of the school so that the students will be exposed to different cases of public issues and take stance(s). This is the latent spirit of JIM, which is more fundamental to its purpose than its strict sense.

Roth, Charles (1995) studied the discussion of Rosenberger vs. Rector case, involving the ability of public universities to decide whether or not to fund
religious speech, evaluate temporary jurisprudence concerning the establishment and free speech clauses and applies theories in these areas to funding of student religious speech on college campuses. It also outlines factors that universities should consider in deciding on funding.

Mohanty, B. K. (1992) compared CAM with JIM in development of moral concepts and judgement and the personal values of class VIII pupils. The finding of the study indicated JIM was more effective for developing the moral judgement and personal values of students whereas CAM was effective in developing moral concepts.

Pal, S. K. & Misra, K. S. (1991) studied the effectiveness of JIM in developing the social consciousness and the ability to solve social conflicts among pupils of class IX. It was found that the individual jurisprudential approach was less effective than the group approach.

Pandey, S. P. (1991) studied the instructional and nurturant effects of JIM. Here the intelligence and SES of the pupils were found to be interacting with the development of certain values such as equality, tolerance and justice etc.

Kumari S. (1990) studied the instructional and nurturant effect of the Synectics model in language teaching, wherein the students of Classes VIII and IX were compared for development of creativity in Hindi, English and General.

Studies on the Inquiry Training Model involved its comparison with the concept attainment model, Singh, D. K. (1990) found both the models equally effective in the teaching of Physical Science to standard IX students.

Passi, B. K., Singh, L. C. and Sansanwal, D. N. (1991) conducted an elaborate three phase experimental study of CAM & ITM under the guidance of Bruce Joyce aimed at finding the efficacy of the training strategy adopted
for training applications in Indian classroom conditions. This was a workshop-based study on development of training CAM & ITM, which brought in the attitudes of both the teacher educators and the students teachers towards the model.

Malhotra (1991) tried Jurisprudential model with B.A. Part I, II and III students in a college in Hariyana. The study reveals that:

1. The Jurisprudential Model of Inquiry has its applications in Indian classrooms for teaching social sciences at college level.
2. The model makes students aware about moral and social values.
3. They are able to think over the issues concerning these values.
4. The Jurisprudential model of teaching is more effective than the conventional methods in developing ability to extrapolate the matters pertaining to the moral and social values.
5. The model is helpful to students in developing rationale for their stand in preferring a particular value over other.
6. The students exposed to the JIM have higher reading habits than their counter parts that are not exposed to this model.
7. The students read more literature so as to collect more evidences to support their stand.
8. The argumentation of students becomes more valid and rich after their exposure to this model. They develop abilities to analyse, identify and explore the stand for different values. The ability to analyse and identify the social issue goes on increasing with the greater exposure to the JIM.
9. The competency of students in social dialogue also increases a lot with their exposure to JIM.
10. The verbal fluency factors, viz., word fluency, ideational fluency, expressional fluency and associational fluency with the exposure to JIM.
11. This increase takes place irrespective of intelligence and socio-economic status.
12. In the general dialogue students begin to effectively use various analogies so as to strengthen the stand.

13. Students exposed to the JIM fare very well in debates and declamation contexts.

14. Students exposed to the JIM begin to have a belief that there is social good in the values preached by the parents, teachers and elders.

Jackman and Michael (1996) conducted a study on Instructional Models Effective in Distance Education. The purpose of this study was to identify which instructional models based on the framework of Joyce, Weil and Showers, could be used effectively in distance education over the Interactive Video Network (IVN) system in North Dakota. Instructional models have been organized into families such as Information Processing, Social, Personal and Behavioural systems. Each family contains different instructional models with similar assumptions leading to similar outcomes. Models may involve techniques like advance organisers, analogies, memorisation, simulation and role-playing. Subjects were 126 students enrolled in selected IVN distance education courses at North Dakota State University during 1993-1994 and 1994-1995 academic years and the summer 1995 session. The sample included students enrolled in graduate courses offered by the school of education, and one undergraduate/graduate course offered by the College of Business. A survey was administered to students at both on-campus and off-campus sites to measure the most effective and preferred of the instructional models. Results indicated that the sixth highest instructional models (representing three of the instructional models) most effectively utilized over a distance delivery system are: role-playing; simulation; jurisprudential; memorization; synectics and inquiry. Students perceived direct instruction to be the least effective instructional model. They preferred models that actively engage them as learners, both physically and mentally. Recommendations for future results include: examine the relationship between the discipline and the instructional models favoured, evaluate and revise the distance education
handbook to include specific ideas from IVN instructors; and evaluate the instructional models currently being used. A table provides a rank order to effective instructional models using IVN distance education.

Jackman and Michael's (1994) Handbook identifies the instructional models found to be effective for distance education using the Interactive Video Network (IVN) system. Each model is summarized briefly and followed by specific suggestions for the use of the model over the IVN system. For each model, information is given on instructor responsibility prior to, during, and as a follow-up to the lesson. Instructional models profiled are the following: advance organizer; concept attainment; direct instruction; dyads or groups; inductive thinking; inquiry training; jurisprudential inquiry; memorization; role-playing and Synectics (analogies). The handbook also includes instruction for working in visual formats, suggestions to the teacher, and a bibliography listing 29 references for the various models.

According to Stotsky (1992) studied "Civic education : explicit and continuous study of the basic concepts and values underlying our democratic political community and constitutional order". It draws its content chiefly from four disciplines: political science, jurisprudence, history and economics. Political science and jurisprudence provide an understanding of ideas, institutions and procedures about law and government that protect individual right and promote a government based on law, majority rule with minority rights, and the public good. The study of history gives us knowledge of our country's past, which we are as a people, and our success and failures in realizing our countries' political and legal ideals. And economics offers knowledge about how to use scarce resources to satisfy human needs and wants within a constitutional government based on the values of democracy and individual rights. However, language education, too, makes an important contribution to civic education. He stresses that; literary study can contribute to the formation of civic identity and civic character in several distinct ways.
Smagorinsky (1994) has done a review of how teacher-training programs teach prospective teachers. After searching the literature for research on secondary English method classes and finding none, the study solicited information from over 300 universities across the country. Syllabi from 81 universities were received. Through analysis of the syllabi the study identified five basic ways in which methods classes are taught: survey, workshop, experience-based, reflective and theoretical. Though many contained aspects of more than one type, rough distribution among types was: 27 survey, 23 workshop, 8 experience-based, 4 theoretical, 2 reflective, 5 reflective/workshop, 3 reflective/experience based, 2 workshop with practicum and 4 other practical. This analysis leads to two general conclusions:

(1). The prevalence of the survey course was surprising, given that its teaching and learning process are directly in contrast to the types of best method's class and should be theoretically informed.

(2). Involve students in some sort of pragmatic teaching experience, provide a workshop atmosphere, and require students to reflect on their own experiences as learners and on the consequences of various teaching approaches.

Robinson (1998) in his paper provides a rationale for the importance of new teacher induction. Data come from an examination of relevant studies and of local, national and international induction practices. Successful induction practices (1) help new employees settle into their environment, (2) help them understand their responsibilities, and (3) ensure that the organization receives the benefits of well trained, highly motivated employees as quickly as possible. This often involves many workplaces using a peer coach for the first few weeks. The paper then suggests that school administrators must also develop procedures for familiarizing new staff with the school's culture, climate and values. The paper then presents several components to induction. The first component is the perspective experience. This is
followed by four other components: orientation, actually stepping into the classroom, mentoring and review and evaluation. The paper provides information from research on the following: first-year teacher's perception, the benefits of effective induction programs, and state legislated developments. It examines four teacher induction models that possess certain common components. It also offers one administrator's experience with beginning teacher induction. Three appendices provide: a sample new employee orientation/induction process; data on teacher's perceptions of beginning teacher needs; and a chart listing findings from five major surveys of state new teacher induction programs.

According to Muller (1991), the theoretical model of a good teacher has evolved through three stages: (1) the subject-matter model, which was predominant in the 19th century and specifically in 1930s; (2) the trait-factor model, which accompanied the "baby boom" era of the 1950s and 1960s; and (3) the instructional design model, whose development paralleled emergence of the global economy of the 1980s. In the subject-matter model, the teacher was perceived as a scholarly, culture mentor; the teacher became a facilitator of personal and social growth; with emphasis on identifying the qualities of teachers that can nurture the child's total development. The instructional design model subsequently represented a shift from psychology of learning to psychology of instruction, with the teacher focusing on how to improve individual student's performance by employing a combination of human and technological resources. The paper concludes that there have been many undergraduates who initially appeared to be poor prospects for teaching but by dint of conscientious effort in their teacher education programme have gone on to become both systematic and humanistic teachers.

Callison and Wright (1993) investigated the effect of three specific hands-on teaching strategies on the attainment and alteration of preservice elementary teacher's conception about earth-sun-moon relationships. The subjects
(n=76) were enrolled in an elementary school science methods course. The descriptive nature of this study explored: (1) the effect of two instructional strategies - those using models versus those not using models - on pre-service teacher's abilities to develop models to explain the occurrence of the lunar phases; and (2) whether spatial skills and reasoning levels interact with the abilities to develop the explanatory models. The results of the study suggest that models do have an effect. The group using only mental models did not show any significant change from pre-test to post-test on the retention test. The group using physical models had significant categorical shifts from pre-test to post-test. No significant interaction between spatial ability and model development was found. Results also suggest that concrete manipulated models appear to work best for novel situations, but that the type of models used in teaching abstract phenomena should be carefully determined. The paper concludes with several recommendations for further study.

Andrew (1992) stated about his study that, research and controversy continues to surround the principles that underpin the teaching of English. English teachers, nonetheless, must understand and be able to articulate a rationale for what they believe to be important in the teaching of English. In Great Britain the introduction of a National curriculum for England and Wales has produced a ferment of activity, including intense scrutiny of the way English has been taught. In Britain, a government committee defined five models of English teaching: personal growth, cross-curricular, adult needs, cultural heritage and cultural analysis. A survey was conducted with a purpose of discovering and practising English teachers through the various models as well as the institutions of a national curriculum. Forty-six respondents from a range of schools were studied via questionnaire between January and March 1992. The teachers were asked to rank the priority of the five models. Teacher responses indicated that the personal growth model was the most favoured model currently. Answers given to numerous specific questions about methods and models of teaching provide
ample evidence of the current state of teacher attitude and philosophy in Britain. Cultural analysis seems to be growing while the cultural heritage model no longer dominates as the power of the canon continues to weaken. The survey suggests the need to do further investigation into the possibilities of both cultural analysis and media studies as models for English instruction.

Berliner (1987) found out that questioning enables the teacher to judge the effectiveness of instruction. Many teachers can see confusion in eyes of the students, but need a better strategy too for determining student comprehension than student nonverbal clue. Two studies on teacher understanding of student clues for comprehending the lesson conclude that, even after training, the teachers are not good judges of what the students are thinking or understanding during the lesson.

Suhasini (2003) asserting that the task of education is to bring about a healthy, sustainable and harmonious growth-oriented society, the author emphasis the need to make people aware of their rights and duties. In accordance with the recommendations of the Vienna Conference, the United Nations Decade for Human Rights Education (1995-2004) was proclaimed. The objectives of the Decade 1995-2004 were proclaimed. They include,

a) The assessment of needs and the formulation of effective strategies for the furtherance of Human Rights education at all school levels, in vocational training and formal as well as non-formal learning.

b) The building and strengthening of programmes and capacities for Human Rights education at the international, regional, national and local levels.

c) The coordinated development of Human Rights education materials.

d) The strengthening of the role and capacity of the mass media.

e) The global dissemination of the Human Rights in the maximum possible number of languages.
Philips & Hardy, (1997) conducted qualitative case studies of the refugee systems in three countries with open ended interviews with 81 civil servants, politicians, NGO officials, refugees in Government, the refugee councils, other NGOs and refugee organizations. They examined a series of texts from different organizations, newspapers, and government to explore refugee discourses. They include government statistics, annual reports and minutes from annual meetings, published documentations, Hansard reports of parliamentary speeches in the United Kingdom of Canada and Newspaper articles. They found a high discursive struggle around central concepts pertaining to the refugee system, particularly between human rights and sovereignty and between paternalism, and empowerment, which produced contradictory views concerning refugee identities, including political refugee, economic migrant as well as refugees as “clients” o as a “constituency”.

3.2 STUDIES ON DISCOURSE ANALYSIS

The last study by Philips and Hardy brings out the importance of analysis of discourses of client groups while studying aspects such as human rights and other public policy issues. For going to the intricacies of discourse analysis, we need to delve into research in Linguistics and other departments, which nurture the discipline of discourse analysis.

A careful Review of Discourse: analysis literature collected from personal and library sources and from internet sources yields some useful ideas and constructs which held out some promise to be helpful in analysing the verbal exchanges in Bhûmiyûṭe Avakâśikal and in the following comparative analysis

Tuominen, Kimmo (1997). Through the analysis of the discourse of librarians and the analysis of their interaction with library users, Tuominen critically evaluates the current trend in LIS research to analyse the inner
world of the user. In so doing, Tuominen explores the hidden ideas and agendas, as well as institutional implications of this new trend. By Analysing how the identities of user and librarians are constructed in an often-cited user-centred text, Tuominen concludes that users and librarians are positioned in an unequal power relationship. While the identity of librarians are constructed/positioned as mind-reading experts and as the information search controllers, users are positioned as uncertain layperson, unsure of their needs and information search. According to the author, the main goal of the paper is to analyse how our profession constructs identities in order to fulfil its own fallacies.

Forrester, Michael A., Christopher Ramsden, and David Reason (1997) consider that the research interview constitutes the main source of information on library users, the three authors apply Discourse Analysis to the research interview in a reference situation. The paper discusses the advantages and disadvantages of using discourse analysis when examining users' responses, in particular in response to costs and benefits of utilizing discourse and conversation analytic methods.

Budd, John and Douglas Raper (1996) provide an evaluation of Discourse Analysis and its application in the field of Library and Information Science. Starting with the premise that communication lies at the heart of our profession, Budd and Raper conclude that Discourse Analysis is a useful tool that can be applied to LIS literature. By investigating form and function of the current research and analysing its use and definition of the term "information," the authors infer key implications for LIS theory and practice.

Frohmann (1992) introduces Discourse Analysis as applied to the field of Library Science and analyses the current debate between proponents of various research methods. In so doing, he deconstructs the claims and arguments made by each and provide his own interpretation of the "yearning for natural-scientific theory" in our field. He perceives this yearning as
dominating the discourse of research in Library Science and expands his critique to the dominance the modern capitalist discourse in our society. In this sense, Frohmann uses Michel Foucault’s theory and combines its method with a social critique reminiscent of Fredric Jameson.

Patricia and Herzberg (1990) have done an excellent introductory work to the whole history of rhetoric, that is, critical thinking and discourse analysis. Authors and works are presented and their theories/contents explained. This is an excellent starting point and also provides a selected bibliography at the end of each chapter. Use this resource to become more familiar with the theories and authors in Discourse Analysis.

Frohmann (1994) applies the kind of discourse analysis practiced by Michel Foucault to the field of Library and Information Science. This is both an introduction to Discourse Analysis and an explanation why the theories of Michel Foucault are relevant to our field, as well as an example of the practical application of Discourse Analysis.

Goffman’s (1959) work for discourse analysis is still in more than one respect left to be explored (for instance, his distinction between the front and back regions of institutional action, cast as a distinction between formal public performance (front region) and more informal back region activity “where the impression fostered by the performance is knowingly contradicted as a matter of course”. Goffman’s frame analysis is essentially about how social actors organise their experience in terms of recognisable activities (e.g. a game of chess, a conference talk, a hold-up, etc.). Goffman’s development and use of the concept particularly brings out the multidimensional character and layeredness of such frameworks - frame built upon frame. He draws our attention to the interplay between primary frameworks and the constructed frameworks of social relationships.
According to Schutz (1888) a discussion of the concept can usefully begin with a reference to what called "frames of reference", i.e. a set of connections among objects, events, behaviours, etc. constituted as an anonymous and recognisable structure of relevancies. Frame analysis reveals the complexity of mundane social activities and it brings out the arbitrary nature of any fixed, social-domain or activity-based dichotomy between the staged and the real. It brings out the reality-constructing capacities of what is staged, but also the staged nature of the everyday tangibly real. Note in this respect for instance that mass-media communication - including especially the solidly real called "news broadcasting" - is saturated by frame laminations which are deliberately and purposefully staged.

They have drawn attention to the various linguistic devices that can be used to ensure that a text "hangs together" (cf. the concept of textual cohesion). Such devices include the use of articles, lexical repetition and personal pronouns to refer back to entities mentioned earlier in a text and the use of linking words to establish a particular logical relationship of, say, contrast, concession or addition between two or more sentences in a text. Texts are divided into five functional types: argumentative, narrative, descriptive, expository and instructive. In some versions of this theory, the five types tend to be viewed as textualisation-strategies.

Dewey (1933) defined the nature of reflective thought as "active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusion to which it tends". When critically evaluating a research project or text, one should, therefore, not limit oneself to post-modern theories.

Schiffrin (1994) says the study of discourse has developed in a variety of disciplines - sociolinguistics, anthropology, sociology, and social psychology. Thus discourse analysis takes different theoretical perspectives and analytic
approaches: speech act theory, interactional sociolinguistics, ethnography of communication, pragmatics, conversation analysis, and variation analysis.

Austin and Searle (1969) distinguish between constative utterances (those which describe something outside the text and can therefore be judged true or false) and the so-called performatives, i.e. utterances which are neither true nor false but which bring about a particular social effect by being uttered. For performatives to have the desired effect, it has to meet certain social and cultural criteria, also called felicity conditions. These are called 'speech acts'. The threefold distinction is that between different types of action. For instance, by speaking an utterance (locution), the social act of making a promise to be performed (illocution - what the speaker does by using the utterance) and, as a result, convince the audience about the commitment (perlocution - what the speaker's done, having made the utterance).

According to Searle (1969)' Austine's theory of language is part of a theory of action, simply because speaking is a rule-governed form of behaviour. Now, being rule-governed, it has formal features, which admit of independent study. But a study purely of those formal features, without a study of their role in speech acts, would be like a formal study of the currency and credit systems of economies without a study of the role of currency and credit in economic transactions. A great deal can be said in the study of language without studying speech acts, but any such purely formal theory is necessarily incomplete. It would be as if baseball were studied only as a formal system of rules and not as a game.

According to Derrida, the force of an utterance is already there in the locution and we never succeed in strictly separating force from meaning: meanings have force and forces have meaning. Although this discussion is not developed explicitly in Signature Événement Contexte, it is presupposed
like a running thread through the text. It constitutes an irreversible turn in Derrida's thinking.

Howarth (2000) is based on an elaboration of Michel Foucault's genealogical method: to focus on the construction of conditions of possibility of dominant problematisations in a specific socio-political context, in short, an interest in dissolving power/knowledge complexes.

The linguist Bienveniste (1971) who focussed attention on the mediation of language in the construction of the subject says: Language is accordingly the possibility of subjectivity because it always contains the linguistic forms appropriate to the expression of subjectivity, and discourse provokes the emergence of subjectivity because it consists of discrete instances. In some way language puts forth 'empty' forms which each speaker, in the exercise of discourse appropriates to himself and which he relates to his 'person' at the same time defining himself as 'I' and a partner as 'you'. The instance of discourse is thus constitutive of all the coordinates that define the subject.

Brown and Gilman (1960), analysing GM Hopkins's poem addressed to God have shown the importance of pronouns of address and that can be analysed along an axis of 'solidarity' and axis of 'power' in which interpersonal relationships of reciprocity and non-reciprocity can be gauged. The address form 'thou' is supplemented by other address forms titles-like, Oh! Lord God, the creator of this universe is designated. This supplementary mode of address signal the existence of other domains than the private one of prayer. The interaction is held in tension with these other, more public, domains and the course of prayer is constructed along the interactions of this more public, and formal dimensions. The consequences are that the subject of discourse is split in its construction along private and public domains accordingly.
Roger Fowler's (1977) "Polyphony in Hard Times" starts with Mikhail Bakhtin model of heteroglossia. He presents two basic modes in representational fiction:

1. Monologic mode – characterised by a single, unified ideology, voiced by the author;
2. Dialogic or polyphonic model – the former characterised by unresolved opposing voices within a text, the latter by a plurality of independent and unmerged voices and consciousnesses.

Fowler cites profusely from Hard Times to illustrate how Dickens handles polyphony as a master artist, as a psychologist, as a humanist, and as a propagandist for social justice. The conversations between Rachael and Stephen, the speech styles of Gradgrind and Bounderby are analysed in detail. A possible model for the structure of Hard Times is provided by Mikhail Bakhtin's theory of the 'polyphonic' novel; a theory which has a great benefit, for the purpose of the reviewing critic, of being interpretable in linguistic terms. In a complex argument, partly theoretical and partly historical, Bakhtin proposes that there have existed modes of representational fiction: monologic on the one hand and polyphonic or dialogic on the other. In the polyphonic novel, the characters are more liberated: they achieve voices, and points of view, which challenge the validity of the authorial position.

At superficial level, the application of these ideas to Hard Times seems well justified. Three of the role clashes just mentioned (employer/ worker, teacher/ pupil, husband/ wife) figure directly and importantly in the plot. Then the novel contains large number of diverse characters of very different social origins and affiliations, putting forward many and clashing points of view. Roger Fowler look more closely at how the multiple languages of Hard Times signify and intersect by examining samples under three headings: Idiolect, sociolect and dialogue. An idiolect is the characteristic speech style of an individual. Like dialect, it is a set of background features of language,
supposedly constant and permanent characteristics that distinguish a person linguistically. Idiolects apply to literature in two ways. First, the elusive ‘style of an author’ might be thought of as an idiolect.

Vimala Herman (1986) noted that Hopkin’s poem repeats the ‘I’, which is generally conflated with the person of the author. This move implies that critical activity has tended to focus on the real-world author’s thoughts, feelings etc. Herman questions the legitimacy of the literary-critical practice of equating the personality of the author with the personality of the author with the meaning or value that a reader derives from the reading of a poem. Herman notes that there is a ‘gap’ between the two subjectivities of the author as empirical author and the fictional subject in the poetic discourse, and the dynamism involved in the interpretative process as interaction between text and reader is neglected in the process of simple mappings in which one subjectivity or ‘self’ is read as synonymous with the other.

According to Brown & Levinson (1987) one can subsequently distinguish between two types of face wants: positive face and negative face. Positive face refers to the desire to be appreciated as a social person. Negative face refers to the desire to see one’s action unimpeded by others. Corresponding to these two face-types, language communities develop strategies to attend to positive and negative face wants. These strategies are referred to as positive and negative politeness strategies. With particular reference to negative face wants, Brown & Levinson have developed the concept of a face threatening act to refer to verbal acts which intrinsically threaten face and may therefore require face-regressive action. Brown & Levinson are preoccupied with “losing face”, but there is hardly an equivalent discussion of “gaining face”.

Martin (1992) & Rose (2002) have extended discourse model with two additional, higher planes of analysis: genre and ideology. Genre is seen as a staged, goal-oriented social process realized through register: a sequentially
organized pattern of registers. Ideology, finally, is motivated by an observation borrowed from the work of the British sociologist of education, Basil Bernstein: meaning potentials are not evenly distributed across participants in a given social-cultural space.

In Searle's (1969) opinion, early text linguists concentrated on the development of various paradigms for the study of how sentences interconnect. They have drawn attention to the various linguistic devices that can be used to ensure that a text "hangs together" (cf. the concept of textual cohesion). Such devices include the use of articles, lexical repetition and personal pronouns to refer back to entities mentioned earlier in a text and the use of linking words to establish a particular logical relationship of, say, contrast, concession or addition between two or more sentences in a text. Other text linguistic themes include: developing a typology of text types (esp. written text types). The most commonly known classification is that typological variation can be reduced to 5 functional types: argumentative texts, narrative texts, descriptive texts, expository texts and instructive texts. In some versions of this theory, the 5 types tend to be viewed as textualisation-strategies. It is not uncommon for a single text to incorporate parts, which fall under different functional headings (for instance, a novel may consist of descriptive, narrative and argumentative episodes; a newspaper editorial is likely to contain narrative and argumentative parts).

As an appendix, the researcher wants to add some more relevant jurisprudential issues to strengthen the research episode on the basis of its legal as well as environmental foundations. Now a days such issues are growing in a tremendous way and it is very essential to adopt legal and environmental problems in educational situations especially in high school classes. Thus the following issues are very relevant to come under Jurisprudential Inquiry Model.
3.3 STUDIES IN ENVIRONMENTAL EDUCATION, WITH PRIORITY TO ENVIRONMENTAL JURISPRUDENCE

Leelakrishnan (2005) raises some issues on 'Environmental jurisprudence' in his essay; 'Bhoogarbhalam aarude vaka?' 'Environmental jurisprudence' is growing year by year by facing the new challenges. The harm arises to the underground water will destruct the equilibrium of the locality. By referring the 'Plachimada' issues he explains, "the springs, ponds, rivers and lakes all are the gifts of nature and they should be protected for the stable developments of the country without discarding the existence of the biodiversity, originality and the livelihood. Without thinking the dangers in future we are receiving the booming industries with both hands by forgetting or overcoming these truths, especially the foreign companies on which the Indian shareholders have no considerable influence at all. The state and each individual have the duty to protect and develop the environment. Right to pure water is the fundamental right of each and every citizen. The limits of globalisation and privatisation can be found out in the constitutional regulations. Human beings and other animals cannot exist without drinking water, can they? As the trustee, the government and the Panchayaths have great responsibility to keep up the public wealth. The common water resources should be protected and kept. So it should not be registered to private people and the public property cannot be privatised."

The World Water Vision (2004) report says "there is water crisis today. But the crisis is not about having too little water to satisfy our needs. It is a crisis of managing water so badly that billions of people and the environment
suffer badly." Some of these facts that are related to water resources are:

1. Fresh water represents only 0.025% of the world water resources.
2. 1.4 billion people live without clean drinking water (more than one out of six people lack access to safe drinking water).
3. 2.3 billion people lack adequate sanitation (more than two out of six lack adequate sanitation).
4. 7 billion people die yearly by water-borne diseases.
5. Daily per capita use of water in residential areas equals 350 liters in North America and Japan, 200 liters in Europe and 0-20 liters in Sub-Saharan Africa.

Two or more countries, mostly without adequate legal or institutional arrangements, share over 260 river basins.

Narasimha Reddy (2002) scans the environment problems in India, and emphasises on the need for environmental education to promote sustainable development. Environmental Education emphasizes on personal and social decision-making. Personal and social decision-making is seen as ultimate goal of environmental education. Many think that there is a proper place for citizen action in the environmental education curriculum. However the sequence of instruction should end with citizen action and it should be an option, not a requirement. It can be organized around three themes.

*Knowledge of environmental processes and systems inquiry skills.
*Skills for decision and action.
*Personal and civic responsibility

The UN Conferences on Environment at Stockholm (1972), Belgrade (1975) and Tbilisi (1977) triggered several studies which have been documented in Saveland (ed) (1976) (which compiled cases from several nations), Prospects (1977) and other sources. In presenting EE studies in his chapter the differentiation between 'for' studies 'through' studies and integrated studies are not made.
The Vikram Sarabhai Community Science Centre, Ahmedabad is covered in one case study presenting how EE was promoted in group work. First groups are introduced to different types of activities: (1) Taking a walk in the meadow behind the centre which was really a natural outdoor science laboratory with birds, trees, plants, insects and a variety of contours and characteristics; (2) Browsing about exhibit tables in which a large number of objects and pictures describing the Ahmedabad environment realistically and symbolically are presented; (3) Sitting down to a discussion on the subject. After consolidating the working inquiry process, five stable groups were formed, dealing with: (1) The Sabarmathi River (2) Water Tap (3) Animal Habitat (4) Termite (5) ‘Me’ and ‘water’. Each group formulated investigatory questions and proceeded about its work. A number of interesting structural differences from traditional school experiences were noticed. Many typical science process outcomes were being realised. However there was a tendency of participant attendance to drop out. But the younger students tended to stay with the programme.

Exemmal’s master’s study on *Models for Teaching School Botany using Environmental and Ethnic Resources* is perhaps the first study conducted at Indian university level research in education in this area. This was taken up at a time (1974) when the use of environmental resources in primary school botany, was being taught in most schools almost totally verbally with heavy technical jargon. The study attempted to make an analysis of the current environmental and cultural situation in relation to the upgraded syllabus for upper primary schools. The investigator found that agricultural field is the only component reported by the majority of teachers to be used in teaching botany. Observation and analysis revealed a number of environmental resources like profuse plant growth around the school which could illustrate several botanical principles (which remain unused or even unrecognised by teachers); use of plant products for decoration, ornament, medicine etc.; ethno-botanic classification and analysis embedded in the ordinary
Malayalam language, which have potential for initiating scientific thinking and for bridging the home and the school; the diffusion of modern science among the ordinary people by the Farm Information Bureau at a rate faster than the official education mechanism spreading practical and functional science culture in schools.

Leelamma Mathew (1975) investigated the potentialities and means of coordinating the teaching of Biology, especially the portion related to agriculture with environmental resources and with the services of the agricultural extension department. She collected data from natural science teachers and 40 agricultural extension officers using a questionnaire. The study showed that (1) there is significant relationship between the locality and using the experience of children in developing agricultural lessons; (2) school gardens are more common in rural schools than in urban school; (3) the most commonly used method to teach agricultural ideas to pupil in school is lecture, with occasional showing of pictures, whereas agricultural extension officers used live transaction, which was necessary because they were dealing with non-captive client groups; (4) the majority of the agricultural officers are of opinion that biology teaching in schools can be improved if the method by which they teach farmers are adopted in schools.

Pillai (1975) constructed and tested models of relating the teaching of the ecology-oriented portions of standard IX with local environment. Visit to forests to observe different species, conducting vanamahotsava etc., were the items in the rating scale which got the lowest score in terms of present use. The investigator suggests that a spirit of co-operation between schools and external resources of the state as done in the young farmers' club and young naturalists' club would be very relevant in science teaching.

Joseph (1975) investigated the potential and practice of using out-of-school resources in conducting science clubs. He found that fields, agricultural farms, and gardens are present near almost all school. Only a significantly
differentiated minority of teachers use these environmental resources for the teaching of science. Manure shop, coir industry, agricultural lands etc., can be used for teaching science whereas most teachers and students are unaware about the presence or use of these resources.

Elizabeth Mathew (1976) conducted a study on the formulation and evaluation of environmental approaches in biology education and arrived at the conclusion that environmental approach is superior to formal approach in terms of developing or achieving many educational objectives including environmental understanding, aesthetic aspects and academic items. One interesting finding in her study was that in environmental teaching the usual sequence of prior objective followed by designing learning experience and evaluation is often reversed. The environmental experience directly provides a learning experience from which relevant educational objectives could be extracted. An interdisciplinary transaction also is commonly met with in a situation like pest control, learning experiences and objectives pertaining to botany, entomology, chemistry etc., come naturally together.

Joy (1985) conducted a study on the extent of high school pupils' awareness of environmental chemistry and its effect on their achievement. The main findings of the study were: (1) there are a number of concepts in chemistry, which have association with the environment and daily life situations. (2) there are a number of environmental situations where chemistry is applied (3) the results of the analysis of data show that our high school pupils have very poor awareness of environment chemistry (4) pupils' awareness of the use of chemicals, chemical reactions and principle in the field of industry and medicine is not satisfactory (5) pupils do not have satisfactory awareness of the chemical process and phenomena occurring in nature.

Rajput et al (1980) conducted a study on environmental approach of teaching at primary level. The M.P. State curriculum for classes III and IV was redesigned to build scope for environmental approach of teaching. The
effect of implementing the redesigned curriculum in primary schools was assessed (with a sample of over 1000 students) on environmental awareness and achievement in science. The study revealed: (1) Only one of the four groups (2 schools x 2 classes) was significantly different as environmental awareness at pre-test stage, whereas at the post-test stage two experimental groups were significantly better than the control group. (2) The difference between the experimental group and the control group on a traditional achievement test was not significant.

Gupta, Grewal and Rajput (1981) conducted a study of the environmental awareness on 115 students (comprising urban, rural and non-formal sectors). They identified the components of environment in which children from rural and urban areas were lacking and suggested means for developing environmental-based curriculum at the primary school level.

Pai (1981) prepared and tried out a curriculum in environmental studies leading to life-long education for college students. The main objectives of his study were: (1) to help students acquire an awareness of the inter-relationships, interactions and interdependence existing between biological and physical aspects of the total environment and sensitivity towards the environment and its applied problems. (2) to help students acquire strong positive attitudes, sound ecological values towards the seeds for a better environment and the necessary motivation for actively participating in its protection and improvement and (3) to help students develop skills necessary for solving environmental problems and taking preventive measures.

The environmental studies curriculum prepared was tried out experimentally (Expt. group-72; Control group-60) and tested with specially prepared tools. The findings of the study were: (1) There was significant difference in the performance of the experimental group as compared with the control group on knowledge scores and attitude scores. (2) The experimental group had
gained more than the control group in environmental activities inventory. (3) As a result of instructions for using the curriculum, students reflected clearer and more vivid images perceived in terms of their sensitivity towards the environment. (4) Unit-wise analysis of the performance of the students in the experimental group showed they had gained in overall knowledge in environmental problems.

Exemmal (1980) followed up her master's study with a more sophisticated constructive and experimental study for her doctoral research; it involved construction of certain models for teaching school botany using environmental and ethnic resources adapting analytical, constructive, experimental and follow-up judgmental techniques. The study resulted in: (1) The construction of very analytical models for teaching botany using environmental and ethnic resources and very sophisticated constructs using folk science, phyllotaxy etc. and drawing out of educational objectives from these ordinary situations. (2) The efficacy of the teaching models were tested by comparing the achievement in botany (a) of the environmental approach group and formal approach group (overall group) and (b) within the overall group of equated sub-groups (equated separately for each of the variables such as intelligence, science interest, attitude towards science teaching and learning, socio-economic status and pre-test achievement scores) in terms of: (a) immediate post-teaching achievement, (b) delayed memory achievement, (c) extent of forgetting (Special tools were designed and items analysed. The experimental group showed significant superiority both in achievement - immediate and delayed memory). (3) Environmental approach had significant positive effect on the attitude of pupils towards science teaching and learning (A Likert-type scale was prepared and used). (4) The suitability of the teaching models was tested (in terms of the ratings of experts and teachers) with respect to (a) availability of suitable outdoor resources for developing the select learning experiences, (b) lowest stage suitable for introducing the select learning experiences, (c) minimum qualification required for handling the select learning experiences. Though
conventions and conveniences in research abstracting give importance to the experimental and comparative findings, the constructs developed in this study (Finding 1) have a high level of conceptual depth and application potentiality.

Manuel (1982) in a project study on *Using Environmental Potentialities in Education* conducted an analysis of environmental education practices and models in India and abroad and other relevant materials from the point of view of developing a functional theory of environmental education. The study involved (1) analysis of the textbooks in environmental studies of the NCERT and of six state systems from the point of view of components which might facilitate or hinder genuine environmental approach; (2) analysis of textual and non-textual matters from the point of view of potentialities for environmental education; (3) development of some models for EE representing a reasonable compromise between the EE theory and the practical conditions in the majority of Indian schools and non-formal educational context.

The main findings of the study were: (1) Very few genuine EE-type activities as understood in modern developed system seemed to be undertaken in the primary schools. (2) The lead materials (textbooks) at the national level seemed to have some worthy aspects such as process approach in science, activisation, some directives to observations and visits, stimulating questions with some open tables to fill in the answers, thought excursion through the country profusely illustrated with pictures (in history portions), clear verbal processing and the like. (3) The national level textbooks lacked the higher specifications commonly adopted in modern EE procedures and in open, multi-disciplinary approaches to the environment. Defects such as pre-empting investigation (by suggesting the answers), premature precision (overlooking the initial phase of romance in environmental exploration), simulations and artificial situations even where natural situations were available in the environment (e.g. soil erosion), adoption of spectator
approach where participant approach was possible, insufficient respect to work culture - were noted. (4) The NCERT’s Curriculum Framework which had obviously guided the textbook gave useful negative guidelines; but specific positive guidelines needed by environment education workers were lacking. (5) As regards the state-level textbooks, some of the drawbacks of the national-level books were carried over and some of the merits seemed to have been missed, like replacing open exploratory tables by closed tables, more pre-empting of environmental exploration. (6) Work at the Vikram Sarabhai Community Science Centre, Ahmedabad, Kerala Sastra Sahitya Parishad and workshops conducted with the British Council collaboration in Tamil Nadu and Kerala were instances of functional EE starting from the ground environment and developing useful constructs; (7) The study yielded some theoretical analysis of environmental knowledge and some relevant models representing a combination of modern EE theory and the local context and culture.

Mercykutty’s (1996) doctoral study was on Developing and Testing Models of Teaching Mathematics Using Environmental Resources. It included a small experimental study, which showed the superiority of experimental approaches over conventional methods. But of greater relevance are the environmental observations and mathematical and analyses and case studies. A very low achieving boy in maths with high skills in many crafts and productive play was adopted and in collaboration with him made several improvisations and analysis of high educational potential from the environment. When introduced to enactive maths through mat weaving with symbolic overlapping gradually introduced, he began to improve by leaps and bounds and became a resource person, helping low achievers in Class X by producing iconic forms of the mathematical concepts. Mercykutty also learnt tailoring and embroidery in order to develop iconic-enactive episodes, and validated them through case study cum experiments.
Further environmental observation and analysis, and prolonged reflection and meditation led to Mercykutty's ten models relevant for environmental maths education: *Free exploration, Patterning, Ecstasy through mathematics-music convergences, Ethnomathematical models, Linguistic-related models, Bridging models, Artistic and gestalt vision, Sociocultural learning climate, Project model and Physically perceived space penetrated through mathematico-philosophical space*. The models were validated though consensus of an expert panel.

Krishnan Kutty in his doctoral study on Developmental Education for Coastal Areas (1998) included a detailed documentary analysis of relevant literature of various types: Kerala high school textbooks (which showed that they do contain much development-related matter which were not recognised or used as such), vocational +2 syllabi relevant for coastal areas (these show direct development orientation, but on account of syllabus over-loading, taught verbally with the examination-end in view), a series of developmental and scientific-technical documents, democratic people's planning reports from panchayaths (which showed high sensitivity to geographic, economic, industrial and environmental craft factors including the changing face of Kerala due to modernisation and mechanisation); analysis of development-oriented situations in the coastal area from the point of view of their potentiality as curricular materials or resources in schools. The coastal environment of Kerala was studied from the point of view of education for the environment and education *through* the environment. An attempt was made to animate school education in functional ways, giving special emphasis to coastal themes.

They study also analysed/described a number of learning episodes developed in the course of the study. These included observation of *Chākara* (mud bank) and other coastal phenomena and of crafts like coir retting a little interior, discussion with folk informants, dialogue with craft experts in mat weaving and tailoring, resulting in some useful constructs, visit to Thangal's
place of work and worship, drawing several learning experiences, visit to Binani zinc ltd. (where the method of extracting zinc deviates from the processes described in the book) and profits from the cadmium byeproduct, experimental animatory episodes inspired by the sea, four 'Singlish' models promoting peak experiences, ecovillage episodes in Chennai/Pondichery as well as in Mannanam (Kottayam), and a dialogic experiment at Government Fisheries Vocational Higher Secondary School. All these were conducted through naturalistic methods and validated through peer debriefing, triangulation, and using criteria like authenticity, trustworthiness, transferability etc. Some episodes had extraordinarily powerful effects with pupils.

Lali's doctoral study (2002) on Integrated Education Models using Environmental and Community Resources in Education is also based on a lot of textual, contextual, and situational and other relevant analysis. It also included a survey (a schedule cum attitude scale) to appraise the effect of approaches to the curriculum integrating environmental and community resources introduced during the six years prior to 2002 (and abruptly withheld in 2001-02) and found that on the whole the effects of the environment-integrated curriculum were positive on the relevant dimensions. The textbooks in use in Classes 1 to 7, and the books for class 8 withheld in the criterion year were found to have several components relevant for integrated transactions as compared to the earlier modes.

In addition to the quantitative and analytical modes, fourteen case studies of models integrating curriculum with community and environmental resources were made. One of them was the investigator's own courtyard and gardens being developed as a Habitation Education Centre.