CHAPTER 7

RELEVANCE AND APPLICATION OF THE PRACTICAL INVESTIGATION TO ITS THEORETICAL ASPECTS

7.0 Introduction

This chapter mainly attempts to relate the practical investigation to the theoretical aspects of the study by -

(a) relating the hypotheses and the theoretical issues raised to the main research findings, and

(b) interpreting the findings and examining the relevance of the study in the present teaching/learning context.

The research findings mainly relate to the attitudes of students and teachers, practices in the existing teaching/learning situation, analysis of students' notes quantitatively as well as qualitatively, and observations from a feasibility study based on the working model of 'learning from a lecture.' The main objective is to check if the theoretical assumptions made in the earlier chapters are realized to some extent in the practical part of the study, that is, applied to actual learning activities.

The feasibility study based on the working model of 'learning from a lecture' is the result of the main findings from Surveys 1 & 2 and certain key theoretical issues discussed in the earlier part of the study. The main
theoretical aspects discussed were in relation to the cognitive processes involved in listening to lectures and the use of learning strategies related to subject specific skills. The practical investigation through surveys 1 and 2 tried to establish the urgent need for special instruction by way of serious training to the students who would be going in for higher studies. The results of survey-1 reflect the need and importance of strategy training mainly through teacher and student attitudes and observations of the lecture context. Survey-2 gives evidence of the need for training mainly through students' performance in comprehension tests and classroom activities. Therefore the working model of 'learning from a lecture' emerged out of the urgent need for making lectures more productive, experienced by teachers, students and the researcher.

7.1 Relating hypotheses to research findings

The main hypothesis with which the study began was that students do not benefit as much as they ought to from lectures. This could be mainly attributed to their inadequate comprehension abilities in subject lectures. This finds support in the results of surveys 1 and 2. From classroom observations it is clear that lecturing is the main mode of presenting information and that in a typical lecture situation, there is no role for student participation. Given the situation as it is,
students feel that lectures are useful, especially in preparing them for the examinations. There was however no evidence of the students making use of any strategies that could reflect their adequate use of lecture information even if that was just for an extrinsic purpose. Both, students notes test as well as the comprehension tests show that students have problems in understanding subject lectures and appropriately using information later for lack of knowledge or skill in the use of learning strategies. Total assimilation of information remains incomplete without the information being used later for meaningful activity. Therefore instruction by way of training is essential in the use of the learning strategies. The teachers would also have to keep in mind the needs of the students when selecting and presenting information. With the advent of open education, it is all the more necessary for teachers to be able to make the existing situation more meaningful.

Students take down notes as an 'activity.' The hypothesis related to this activity is that the very process of taking notes while listening should facilitate learning to some extent. It should therefore be possible to predict to an extent their comprehension of information from their notes. The findings from survey-2, however, do not seem to agree wholly with this statement. Notes as taken down do show
evidence of being more of a mechanical process and therefore
do not say much about their comprehension abilities. The fact
that some students are able to discriminate and select
important points from the rest, supports the hypothesis that
the very act of note-taking should say something about their
processing abilities. But this is not the case with most
students.

Students have problems using note-taking as a strategy.
The information in the notes is not used consciously for
extending learning. Students sometimes use other activities
as part of their studying but these are not consciously used
as strategies that could make their efforts more meaningful.
In case of students whose notes have some organization by
way of main points, it is evident that they do not feel the
need to note detailed information except that which
demonstrates the way lecturer's main argument unfolds. These
notes reflect better processing on the part of the learners.
The feasibility study supports the point on the use of
strategies. It is seen that instructions by way of using
certain discourse markers, abbreviations and key words, help
students while taking notes to some extent, and more later
when reviewing. Secondly, students show improvement in
performance in tasks based on the notes which were later
reviewed. Thirdly, some of the other learning strategies
used, show evidence of students making use of information
much more.
It is obvious that notes as taken down while listening serve as a mechanical activity which is merely for storage purposes, suggesting that the act of note-taking without conscious use of encoding strategies does not facilitate comprehension and use of information. The findings that relate to the activity and organization of note-taking suggest that students need training in being able to select points that would show their decoding abilities to an extent. They also feel the need for developing the use of other learning strategies, both cognitive and metacognitive.

From the feasibility study based on the working model, it is evident that students get more interested in lecture topics, where an attempt is made to focus their attention on subject specific tasks with the help of some of the learning strategies. They are seen to prefer one particular strategy. For example, categorizing information is used more in Economics, sequencing more in History, inferencing in both Economics and History and resourcing in all three subjects. However, the use of these strategies would depend on the requirements of the tasks. Results of the two comprehension tests suggest that students' performed satisfactorily in Economics, moderately in Literature and inadequately in History. Secondly, not much of individual variation in students' note-taking abilities was found in Economics and Literature, but variation was high in History. These findings
suggest variability in the use of the strategy and that
different subjects call for different abilities and have
differing demands from students in performing the tasks. If
students' notes could in a very general way capture the broad
differences in lecture presentation, then if given proper
training in being able to identify and select appropriate
points, keeping in mind the nature of a subject and further
use of the strategies for meaningful use of the information
recorded, students would benefit the most from the existing
teaching/learning situation.

7.2 Issues raised and their relevance in the context of
higher-education

Lectures are important in the teaching/learning situation
at the tertiary level. Lectures have the potential of being
useful sources of authentic information in different subjects
for students. The students at the tertiary level, who are
likely to go in for post-graduate studies in their special
subjects, need training in the use of skills and strategies
for making the maximum use of lecture information. The basic
principle of how information is acquired, that is, the
different stages involved in the learning process, is the
underlying principle for understanding lecture information
and using the same for later study. In the given context,
students are motivated and willing to learn from lectures.
The study proposes a working model of 'learning from a lecture', a part of which has been tried out in the form of a feasibility study. In this model, learning from a lecture is seen as a developmental process which focuses on the listener's responsibility for his/her learning. The model is based on learner needs.

The present study attempts to make a distinction between note-taking as an activity and as a strategy. As mentioned earlier, note-taking as an activity is restricted only to classroom activity while listening, whereas note-taking as a strategy is a more conscious, involved and thought out activity which goes beyond the classroom. This would essentially include a review period. This involves working with notes as taken down and using other strategies important for making learning effective. Survey-2 findings suggest that while all students take notes during listening, some students' notes have the potential of being useful later if the students used appropriate learning strategies. This relates to the organizational aspect of notes which has implications for the main stages involved in processing information in different subject lectures. These features provide certain clues for relating the use of learning strategies to students' comprehension abilities. This particular activity of note-taking could form the starting point for subsequent processing stages.
The activity of note-taking is not used as a strategy at the while listening stage. This has been supported by evidence from earlier research in the use of the learning strategies. It is likely that students would use the skill as a strategy only later by way of reviewing and reconstructing information already present in the notes. While many students show a poor level of note-taking ability, their willingness to later note is a useful starting point for training.

Comprehension and use of subject information presupposes an integrative or holistic view of the input, which in the present case comes from specific subject areas. It is for the students, especially at the tertiary level, to understand the differing demands in order to fully comprehend lecture information. This can be related to the deep approach as opposed to surface approach to learning. The concept of 'deep approach' is consonant with the theory that the learner is the main interpreter of meaning. For the learning to be at the deep or interpretative level, the student has to make selective and purposeful use of his/her background knowledge in the broad areas surrounding the specific topic being studied. The 'deep approach' thus crucially involves the listener's intentions, an elaborate interactive process and the outcome. In order to motivate the listeners to
making their intentions more serious, the intentions should be related to understanding the basic nature and the differing demands of a discipline. This would be all the more relevant in the context of higher education.

The actual process, meaning what the listener does with the input to convert it into intake, is taken up in relation to the use of learning strategies at different stages of processing. The learning strategies are used to meet the requirements of different tasks which form a part of the pre-lecture, during-lecture and post-lecture activities. Survey reports suggest that at the while listening stage, students engage largely in a mechanical activity which probably limits their immediate intake. This is not adequate or productive in terms of the information being asked later for study purposes. The process of learning is therefore located importantly in what happens after the actual lecture-listening sessions. The focus is not so much on the final performance but on the efforts made by the listeners in using appropriate learning strategies at different stages depending on task requirements. This has implications for the training programme.

Effective learning presupposes active participation on the part of the learner in the learning process. In the existing lecture set-up, students have very little to do by way of both classroom interaction and outside classroom activities.
The study takes a learner centered approach and emphasizes the role of the learner. The researcher is aware of the fact that for learning to be totally effective, several factors will have to be taken into consideration like - teaching/lecturing, selection of materials, course content and learners initiative, with the assumption that a learner is to a great extent responsible for his/her learning. This presupposes adequate guidance from the lecturer who would help the students to become more independent learners. The training programme would therefore first, have to expose listeners to the different learning strategies, both cognitive and meta-cognitive, help them to select the strategies mainly depending on the topic and task, and appropriately use the same for performing the tasks. The ultimate objective of training is to make listeners more independent leading towards learner/student autonomy.

7.3 Implications of the study

The aim of the present investigation was to look into the existing lecture situation at the tertiary level and find ways and means to make learning from lectures in different disciplines more effective. It was assumed that appropriate use of learning strategies by students in class and out of class as part of pre-lecture, during-lecture and post-lecture
activities, would help students receive lecture information better and use them adequately. The first part of the study concentrates on one particular strategy and mainly looks at the effectiveness of the strategy in the process of comprehension of lecture information in different disciplines. The findings suggest the use of other learning strategies in combination with the strategy of note-taking as an essential procedure in the overall acquisition of information. The results of the study further suggest that the structure or nature of a discipline affects students' use of learning strategies. This implies that one particular strategy can be used differently in different subjects depending on the demands and nature of the subjects.

7.3.1 Methodological implications

The method of investigation followed in the study was observation, data collection through questionnaires, analysis of students' notes and administration of tests.

It is important to state here the significance of the present study with reference to some of the recent trends in such investigations. The present study comes close to an 'Information Exchange Approach' where importance is on the cognitive demands made on the learners by instructional stimuli. The present study attempts to analyze conscious learning
strategies, i.e., those that students use deliberately in trying to comprehend academic discourse in different subjects. The study finally suggests the importance of becoming aware of the nature or structure of a subject or discipline for effective intake of input.

The present method of investigation involves the example of quantitative and qualitative data and their correlations. This helps in comparing the researcher's observational analysis and general responses of students and teachers with quantitative analysis of students' notes and tests, and thereby helps to indicate a true correlation between students and teachers reactions to various aspects of learning and what actually is the learning situation.

The implication of the procedure is that the main emphasis is on the prevailing teaching-learning situation, i.e., lecturing at the tertiary level, as that is where the study begins, and then goes on to research the theoretical aspects as related to the learning situation.

7.3.2 Theoretical implications

The theoretical underpinnings that supported this study were derived from the following premises. They are, firstly, that cognitive processes students engage in when listening
to academic discourse or lectures are of crucial importance, and secondly, that the strategies that are involved within the cognitive processes can be modified and developed through training and instruction to make them more effective for better utilization of input.

The lecture mode of presentation at tertiary level is the same with similar presentations in the different subjects. Similar student activity is found in most of the college lecture classes where a few percentage of students use this strategy of noting. It is therefore held that the approach and the suggestions put forth in the study would apply to other teaching/learning lecture situations and thereby cause optimum transfer of learning.

The approach and the model of learning from lectures presented in the study, is one of the ways of maximizing student learning in the lecture classes at the tertiary level. There are other ways of approaching the problem but they are outside the scope of the present investigation. The study adopts a pragmatic approach with emphasis on students' role and initiative in acquiring as much information as possible from the existing learning situation.

7.3.3 Pedagogical implications

1. Students at the tertiary level, in a lecture situation, are to be made aware of the appropriate selection and use of
learning strategies that would maximally help them learn from the input.

2. It is important to emphasize the nature of different disciplines that students are exposed to.

(a) Implications for the teacher

Different disciplines have different structures and each of the subjects demands a separate treatment from the teacher. It is for the teacher to make students aware of the differences in the subjects by making them look at what a topic consists of through appropriate tasks and use of learning strategies. The study relates to the role of the teacher more as an initiator, guide and trainer in a learner-centred approach, than as an orator. It is important that the teacher realizes the crucial role of the student in the learning process. The teacher alone is responsible for motivating the learners through -

(a) exposing learners to different learning strategies through instruction, and

(b) getting them interested in different subject areas through various tasks and activities. This training is to be built in within the framework of a lecture set up.
Teachers can go beyond their traditional role and create opportunities for students to get acquainted with and apply appropriate strategies. It is for this that the teacher would have to work in close collaboration with other subject teachers.

(b) Implications for the students

The study basically adopts a learner-centred approach whereby the student is responsible for his or her own learning. Students are expected to participate in subject-specific activities or tasks through the use of conscious learning strategies. The study in fact looks at the improvement of the whole situation from students' point of view, i.e., students who would have to make the best of the situation by their active participation in the overall learning process with a view that they would lead to learner autonomy.

(c) Implications for the syllabus and materials

The study has implications for a process-oriented approach and a syllabus, where the focus is more on the process and procedures for learning. The focus of instruction in training ought to shift from grading of products to grading of procedures and tasks. The study has implications for a syllabus which is similar to Breen's (1984) 'content' syllabuses, referred to as "outer syllabuses". The materials, in this case
lecture information in different subjects, are very much within the framework of the tertiary level course content.

7.4 Limitations of the study

Some of the aspects of the study which was not possible for the researcher to carry out are the following.

An intensive try-out of the tasks related to different learning strategies was not possible in the present investigation.

The researcher's notes, i.e., the external criteria against which students' notes were analysed, were prepared by the researcher in consultation with the subject teachers, though it was not possible to get their written versions of the notes. The researcher however prepared the 'adequate notes' only after being exposed to the taped lectures several times.

The scoring procedure adopted for the study could be more thorough and systematic, while including the subject-specific skills in the external criteria. The study mainly looked at students' notes in terms of a set of general criteria. Inclusion of subject-specific criteria and appropriate scoring procedure for the criteria would be useful. There were no proper reviewed forms and restructured forms of the lectures from students' notes available in the present study due to problems of data collection. However, students were allowed to re-read their notes before assessment.
7.5 **Suggestions for future research**

A few suggestions that can be useful for further research in the area are stated below:

1. Future investigation related to techniques of data collection, setting up of criteria and appropriate scoring procedures, test administration factors related to lecture presentation and more systematic and intensive try-out of the suggested model are necessary to develop a more reliable pedagogical theory based on the findings. It would be useful to have experimental and controlled groups for further research into this area. Teachers can be made to adopt different techniques of presentation and see what effects this has on the quality of students' notes. Different groups of students can be compared to see the extent to which students' notes get influenced by lecture presentations. From the present study it was evident that lecturing styles and techniques in different disciplines did affect students note-taking to a great extent. Therefore further research in the organisation, planning and structuring of presentations is required.

2. In the study, an attempt was made to establish the fact that each subject has its own demands and therefore requires to be dealt with differently. In view of this, it was felt that a more systematic analysis of the subject-specific features will be helpful in the understanding and treatment of the subjects.
3. Students' comprehension abilities from their notes will be better assessed if they were made to restructure the lecture information from their notes after a gap of about fifteen days since the time of the presentation of the lecture information, i.e., with a proper review period. This would also focus on the cohesive markers, which students normally omit when taking notes. When restructuring, they would have to build in the linguistic devices in their notes. Data related to this can be helpful in getting more information about students' comprehension.

4. The effect of discourse markers, both micro and especially macro, in lecture comprehension is assumed to be great. Further research into this area will be relevant and useful. It is assumed that the effect of these discourse markers will be evident in students' notes as well, especially the macro markers, which are non-linguistic and which indicate different sections and main ideas in the lecture.

5. It would be interesting to research with students having had secondary school education exclusively through the regional medium and English medium at the tertiary level. This transition can be taken up for further research in this area.
6. The suggested working model can also be tried in other situations like in open classes, with students belonging to different disciplines.

7. Another important step in future research will be to correlate students' performance on their notes with their examination results. This will then give evidence as to whether students' notes could be predictors of their future performance. The use of standardized tests of knowledge and understanding in various disciplines to study the effectiveness of notes is a step that needs to be taken.

8. There should be a way of systematically identifying some of the other learning strategies that students use for acquiring subject information and predict the consequences of their use. According to Bialystok (1983, pp. 104-124):

"It should also be possible to differentiate learners on the basis of their use of such strategies and to relate specific aspects of achievement to the use of particular strategies."

Future research should be directed at refining the strategy-training approach which will include evaluative metacognitive strategies for specific learning tasks and strengthening the effects of the training on student learning and strategy transfer.
7.6 Some wider issues and concluding remarks

Observations of the existing teaching/learning situation and analyses of learner performance through different instruments emphasize the crucial and powerful role of lectures in different subjects at the undergraduate and postgraduate levels. In the context of tertiary level education in India, students depend to a great extent on lectures for acquiring subject specific information. Lectures, inspite of their crucial role, are not as productive or meaningful to the students as they ought to be. This is due to several factors. One of the main factors is that students have problems in understanding and making use of lecture information adequately. This is largely due to their lack of knowledge of the use of appropriate learning strategies which would actually help them to process information for better internalization. Besides, most often the examination system as it is, does not allow students to be independent learners and take initiative for learning. Students are forced to rely on guide-books that cater to stereotype questions. These apparently seem to help learners but contribute very little towards students' comprehension abilities. If subject information is to be used in the right context, students would have to depend on the class lectures and the information noted while listening to lectures. Independent reading by students, specially of what is not clearly and directly linked to examinations is virtually non-existent.
It is only through lectures that they can get the comprehensive exposure to material in their special subjects. Formal instruction therefore should aim, both, to present listeners with challenging listening input through students' special subjects and pedagogic tasks. Even in a lecture type setting as in the existing one, which allows hardly any interaction, there should be opportunities for clarification and questioning in order to ensure that students are actively engaged in listening.

As already noted, training in the use of learning strategies for acquiring subject information from lectures is essential. Lectures too can be seen as a strategy, i.e., lectures act as strategic-input in the given learning context. This is as opposed to lecturing as a routine activity where no meaningful general skills learning takes place. Lectures as in use are more mechanical, a taken for granted method. The study thus suggests a new approach. It points to a possible new perspective on learning from lectures. This involves raising expectations in the form of a new role for lectures. This new role of lectures in the context of higher education presupposes active participation on the part of the lecturers/teachers as well. Most importantly, the teacher provides the input for motivation. The input in the given context is topics in different subjects. Students could be made to get interested in the lectures by focusing their attention on to the nature and demands of the subjects. Students thus sensitized and motivated
would in course of time demand more from a lecture. One interesting way of motivating students would be to expose them to the differing demands of the subjects through different topics. It would be a good idea for the teachers to be able to attempt to induce a 'deep approach' by focussing on the special subjects through giving students some guidance on how to go about learning. Through tasks and activities at different stages of learning from a lecture, students could be made to understand the skills and abilities required of them on the topics. This could be achieved through the use of appropriate learning strategies. Teachers instructions should be related to the input, i.e., the nature of the topic for the use of the strategies, so that student understand how to relate strategies to topic. Training in the use of these strategies is therefore considered essential. Teachers would have to consciously engage themselves in the training programme. The context thus would be very different from lecturing seen merely as a routine activity. It is assumed that if lecturing is looked at as a strategy for providing relevant and challenging input, learning at the tertiary level would be more meaningful.

The discussion is concluded by referring to strategy training in acquiring subject information from lectures. The study has emphasized the comprehension enabling quality of note-taking as a conscious strategy, as a means to
comprehension rather than as simply an activity for storage purposes. Through the training programme, it is essential to make students realize the importance of the strategy of note-taking for effective internalization and creative use of the lecture information. The training would then suggest progression in the use of the skill of note-taking from an activity to strategy, implying levels of sophistication in the learning process. Students need an extended instruction in general strategy use all the more, as they show individual differences in the way they study. This is evident from research studies. The differences are related to the differences in achievement. According to McKeachie (1988), use of strategies will also depend on the kind of material, i.e., easy, difficult or familiar, different kinds of students, i.e., with prior knowledge on the topic, motivated or not, individual characteristics, and task types. This implies that both teachers and learners need to learn more about the conditions under which a particular strategy should be chosen. Those students who have some knowledge of strategy use could be guided to strengthen the existing ones, to broaden the range of strategies and to expand the types of tasks with which strategies are used. In the present lecture context, the proposed 'working model of 'learning from a lecture'
advocates the use of learning strategies within the existing lecture set up. Teachers should see that the use of the learning strategies is embedded in the curriculum as part of their lecturing. A systematic follow-up of the suggested working model, by implementing training based on it will be useful for students in different disciplines, in similar situations.
The concept 'intake' is mainly used to refer to both comprehension and acquisition or use of information. This includes preliminary understanding, internalizing and adequate assimilation of information.