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THE IMPACT OF INDIVIDUALISED LEARNING AND LECTURING ON STUDENT LEARNING IN A MALAYSIAN CONTEXT:

PERSPECTIVES OF LECTURERS AND STUDENTS

Rohana Zubir

In partial fulfilment of the requirements of the degree of Doctor of Philosophy, University of Surrey, Guildford, Surrey, March 1983
Kepada suami ku, A. Hamid,
dan anak-anak ku, Khairil, Suhanna,
Akhtil dan Yohana

"Pengorbanan mu pintu kejayaan ku."
ABSTRACT

The thesis has as its main focus the investigation of student learning from the lecture and individualised learning (IL) in terms of the perspectives of students and lecturers in the Malaysian context.

The sample of lecturers and students was drawn from the Specialist Teacher Training Institute (STTI) and the Faculty of Education, University of Malaya (FEUM), Kuala Lumpur, Malaysia. A group of twenty five students at STTI formed the case study group which I personally taught, using a set of individualised learning materials (ILM) that I prepared. Besides this, two hundred other students also used selected units of the ILM, but they were supervised by their respective lecturers.

Data from questionnaires administered to all the two hundred and twenty five students were supported and amplified by the analysis of semi-structured interviews of a selected number of students. On the basis of this and from the analysis of interview transcripts of the lecturers, the present study indicated the following findings:

1. In IL the students were inclined to adopt a self-oriented learning approach (SOL) while in the lecture they were inclined to adopt a lecturer-oriented learning approach (LOL). In either case the students displayed different study methods and habits.

2. In IL the SOL students appear to use 'deep level' approach in their learning while in the lecture they appear to adopt a LOL approach and used 'surface level' learning.

3. In the lecture some LOL students appear to become SOL students who may or may not use 'deep level' approach in their learning.
4. The lecturers also seem to demonstrate different teaching styles in different teaching modes. In IL some of the lecturers were inclined to adopt a 'responsive' teaching style as opposed to a 'restrictive' one as may be possible in the lecture situation. The lecturers' teaching style was found to be the function of their own orientations in terms of their perception of the characteristics of Malaysian students and their conceptualisation of IL.

In the final analysis I suggested that by adopting a composite teaching approach in which IL is the basic teaching method, teachers may develop a 'responsive' style of teaching which can promote more effective student learning.
My foremost expression of gratitude must be for my supervisors, Prof. L.R.B. Elton and Dr. M.L. Pope, whose guidance has helped me through difficult times in the last three and a half years. This guidance will continue to be a source of inspiration for me when I have to guide others.

I am also grateful to a great number of friends and colleagues. To each and every one of them I would like to say a very big 'Thank you':

To: Puan Khairiah Ahmad and Prof. Madya Ling Chu Poh of the Faculty of Education, University of Malaya (FEUM) for liaising with me and giving me support right from the start of my endeavour. Puan Khairiah so efficiently coordinated the subsidiary study at the FEUM. I am truly grateful.

All my colleagues at the FEUM who have helped in one way or another especially to Mr. Lew Tan Sin, Mr. David M. Tow, Mr. J. Phillips, Puan Khairiah Ahmad, Dr. Rahimah Ahmad, Prof. Fatimah Hamid-Don, Encik Suradi Salim, Dr. Koh Boi Boon, Dr. S. Singh, Dr. S. Kanagasabai and Puan Eshah Abdullah who participated in the study.

Puan Fatimah Mohammad, Encik Mohammad Ali and Mr. Lim Kok Seng of the Specialist Teacher Training Institute (STTI) who participated in the study and to every lecturer in the Education Department here who in some way helped to make this thesis possible. Puan Fatimah Mohammad and Puan Salha Saidin had been so helpful in coordinating the subsidiary study at the STTI for which I am very thankful.

The Principal and Staff of the STTI who made me welcome and treated me like a member of staff.

Mrs. Annette Stannett who kindly helped with the Bibliography and for her maternal concern over my welfare.
Mrs. Margaret Richards who typed the Individualised Learning materials and to Mrs. Yvonne Ronaldson who typed the thesis – a job which both have done so superbly.

Ms Zaibun Siraj for her friendship and for proof reading my thesis.

Mr. Segeren of the FEUM for printing the Individualised Learning materials.

Mrs. V. Harmer of the Computing Unit, University of Surrey, for her valuable help.

Arden, Mike, Morelia, Gladys, Dee, Surat, Keith, Jean, Jackie and all at IED, University of Surrey, for their friendship and support.

I am also grateful to the students of the Year 1981 at the STTI and the FEUM for their active participation in the study.

I would also like to express my gratitude to the University of Malaya for sponsoring my study and my stay in Britain; to EPRD, Kuala Lumpur, and to the Teacher Training Division of the Ministry of Education, Kuala Lumpur for enabling the research to be carried out at the FEUM and the STTI. I thank Encik Raschid Jasin and Encik Abu Hassan Ali of the Teacher Training Division for their help and encouragement.

Last, but not least I am thankful to my long suffering family – my parents, my husband and children for their understanding, patience, support and constant encouragement. I hope their sacrifices have not been in vain.
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CHAPTER 1 INTRODUCTION

1.1 PROLOGUE

"Many lectures are not creative but have degenerated into a dull monotonous dictation worse than the irritating flight of a mosquito in a theatre of up to 500 students. What motivation and incentive is there for regular attendance if such facts and figures are dictated from books."

(Penting, Dec. 1971,
Student News - Faculty of Arts, University of Malaya, Kuala Lumpur quoted in Phillips, 1977)

"The real failure of the lecture is that it divorces teaching from learning and concentrates on the former."

(Elton, 1972)

"You cannot teach a man anything: you can only help him to find it within himself."

(Galileo)

The thesis was inspired by such feelings of dissatisfaction with conventional teaching and the conviction that students have a great potential for self-help and determination if only teaching concentrates on learning. This thesis is an attempt to study how students learn in a conventional and an innovative teaching situation and how their lecturers conceived of student learning in these. To do this, the study necessarily has to be grounded in reality going through several developmental stages as marked out in the following summary of chapters.
1.2 SUMMARY OF CHAPTERS

Chapter 2
The survey of the literature in Chapter 2 covers some of the research on teaching and learning in higher education (in which I have included colleges of education) in general and in Malaysia in particular. (Eble, 1976, suggests that there are similarities among teachers and teaching at all levels and subjects.) The chapter draws implications from this towards the need for improving teaching and learning in higher institutions in Malaysia.

The literature further explores the development, in the West, of a new approach to teaching in the form of individualised learning (IL) which may have applicability in the Malaysian context. However, to base this contention on mere hunches would lack credibility or authenticity, hence the implications for an exploratory study at the pilot stage to investigate the state of teaching and learning in a Malaysian context, and to investigate students' and lecturers' reactions to the idea of IL as a complementary, or supplementary, teaching method to the lecture.

Chapter 3
This chapter outlines the purpose of investigating teaching and learning in higher institutions of education in Malaysia using a semi-structured questionnaire. The analysis and the results are discussed and presented in this chapter. The questions covered in the survey relate to lecturers' conception and experience in the use of a range of teaching methods, including IL. The questions also relate to their perception of important student skills and abilities and of the teaching methods which they perceived were suitable for the development of these. Lecturers were also asked to compare IL and the lecture in terms of student learning.

Chapter 4
As no suitable IL materials (ILM) were available for use in the study, I had to devise them myself even before I had analysed the results of the survey. Time and distance added further constraints. Within the limited time period in which I had to complete the thesis, and the distance I had to cover to collect the data, it became
necessary for me to pilot the instructional materials at the same time as the exploratory project that I mentioned in Chapter 3. This, I think, is justified as a research on an innovatory teaching method can only be meaningful and relevant if it is conducted in the country in which the innovation is to be later tried. Consequently, the stage of exploring about teaching and learning was also the stage of piloting the ILM with students and lecturers, and of exploring students' feelings towards IL as a method of teaching.

Part I covers the description and rationale for the choice of the subject, the process by which the prepared materials were evaluated and subsequently revised, and the analysis and results of students' and lecturers' assessment of the content and format of the ILM. Part II of this chapter reports what the students felt about IL as a method of teaching and learning, and the source of data for this was the semi-structured interview. It was also necessary to monitor the reactions of students and lecturers towards the ILM at the main stage of the study, and how these affect their perception towards IL as a method of teaching. Part III of this chapter very briefly reports the findings related to this.

The findings in Chapters 3 and 4 clearly pointed to the need for improving in teaching and learning in the Malaysian context, and to the viability of IL as a teaching method which has applicability to the Malaysian situation. The two pilot projects were useful in providing the directions in which the main study was to take. The research, however, has not drifted from its original aim of investigating the possibility of using IL in Malaysian institutions. There was, nevertheless, a shift in the focus of the aspects to be investigated which, as a result, also necessitated a shift in the methodological stance from a semi-experimental quantitative research to an eclectic research method, using both quantitative and qualitative data in the natural setting.

Chapters 4 and 6

Chapter 5 deals with the process of rethinking and 'new' directions in the research. The main research questions to be investigated in the main study are outlined in this chapter. I have identified in Chapter 5 the research problem on the aspects of student learning from the lecture and IL, and in Chapter 6 I have provided a survey of the recent research literature related to student learning.
I have mentioned previously that a shift in the methodological approach used in the main study was necessary. The interest in the main study is not on the product of learning as was previously envisaged, but on the process of learning within the natural university or college setting. Hence this kind of research cannot maintain experimental control of variables in the traditional psychological sense, but calls for a more flexible naturalistic and holistic research paradigm that can capture the complexity of the educational process. Nonetheless, I have myself taken an eclectic approach preferring to use both quantitative and qualitative methods of research. The quantitative method provides estimates of the relative strengths of relationships between the aspects of the learning dimensions being studied, but, by themselves, they cannot provide explanations for these relationships. Thus, the quantitative estimates have to be interpreted alongside other forms of research evidence such as that from interviews.

Chapter 7

This chapter discusses the rationale for adopting such an approach and, subsequently, describes the research contexts. The research techniques used and their rationale also form the subject of this chapter. The procedure for data gathering, the analysis and the results are presented in Chapters 8 to 12.

Chapter 8

This chapter is presented in three parts.

Part I reports the quantitative results from a survey based on a Questionnaire on Student Perception of IL and the Lecture (Q2, SPIL). They relate to the perception of students to IL and the lecture in terms of the acquisition of knowledge, understanding and retention. The students' perception of IL and the lecture and how these affect their study approach and habits and their interaction with lecturers and peers, are also discussed in this chapter. The results analysed from the survey are important in that they immediately provide interesting findings which can then be further interpreted in the light of more qualitative responses. Part I, in a sense, serves as important starting point to identify issues which merit further investigation. In fact, arising from the results presented in this
chapter, a hypothesis was generated. The hypothesis states that students not only will adopt different study approaches in different teaching situations, but, more importantly, students using a particular study approach in one teaching mode will change their study approach in another. Similarly, it is postulated that students who demonstrate a particular study method and habits in a particular teaching mode, will modify these to form a new method and habits in a different teaching mode. In both circumstances time is an important variable affecting the change. This means that students need time to be weaned from a teaching method and study mode which they are used to, and time to develop new study methods and habits. The evidence for this is analysed and presented in Part II of Chapter 8 where patterns of relationships are examined and discussed, and further illuminated by students' open responses from Q2, SPIL and the transcripts from interviews.

The postulates mentioned in Chapter 8, however, are not general patterns of behaviour into which all students must fall. Students' willingness to change their study approach, method or habits very much depends on the orientations of the students.

Part III discusses two distinct learning orientations which evolved from students learning from IL and the lecture. One group was found to be lecturer-oriented (LOL) - they showed a strong reliance on the lecturer for guidance and explanation, while the other group perceived their learning as self-oriented (SOL). The former favoured the lecture method and the latter favoured IL. Then there was a middle group which I have termed as lecturer + self-oriented (LOL + SOL). Students in this group preferred to receive some amount of explanation first and then be left to pursue their own learning.

The chapter also examines the implications of these orientations to approaches in learning as suggested by Marton's 'deep' and 'surface' learning.

Chapter 9

A pertinent issue raised in Chapter 9 is the students' preference for work in a participative situation in groups. It
also looks at IL with individual tutorial and IL with group interaction task sessions. The sessions were tape recorded and were played back to the group when I met them soon after for a group interview. Students also answered a questionnaire on group interaction tasks (Q3. ILGIT). The questionnaire in the form of rating scales was developed from responses elicited at the group interviews.

Chapter 10

This chapter looks at IL from the perspectives of the lecturer who participated in the study using semi-structured interviews.

Chapter 11

This is the last chapter on the analysis of the data and is concerned with the investigation of IL as it was perceived by the students and lecturers along a spectrum of other teaching methods familiar to both students and lecturers using the repertory grid technique. The aim was to investigate if there was any concordance between students and lecturers in the way they perceived the impact of IL, along with a range of different teaching methods on student learning. The sharing of common views about teaching and learning between them, may be a start towards suggesting a more fruitful negotiation between what students need and what lecturers can offer in the teaching and learning process.

Chapter 12

The findings in the last four chapters are drawn together to a close in this chapter. The chapter concludes with a summary of the thesis. As well as this, it synthesises the findings from the previous four chapters into two models of learning. On the basis of these a hypothetical model of learning is developed to incorporate IL as a basic method of teaching along with three other teaching components. This chapter recognises the limitations of the study and the research grounds still uncovered. As such, the final chapter also looks at the implications of the study for further research.
CHAPTER 2 LITERATURE REVIEW I - GENERAL ISSUES ON TEACHING AND LEARNING

2.1 DISSATISFACTION WITH CONVENTIONAL TEACHING AND LEARNING

The literature on teaching and learning is very extensive. Its review in this thesis can do justice to only a few.

It has long been recognised that the aim of higher education is to create self-directing individuals who should learn to think and work independently (Hills, 1976; Unsworth 1978) and that their method of study should be made more effective (Beard, 1970). This has never been fully realised so that to this day students' lack of motivation and self-direction in learning continue to become the traditional coffee-room conversation, and the subject of many publications.

Educationists concerned in the welfare of student learning have expressed dissatisfaction over the teaching and learning conditions that prevail. Most higher institutions are seen to practise teacher-centred teaching and learning in which the students have been conditioned to accept that the role of the instructor is almost one of conveying information in the classroom (Hills, 1976; Milton, 1973). In fact, it is likely that students have been conditioned to passivity from secondary school where as Elton (1979b) suggests examinations at this level are likely to favour passive learning. Biggs (1971) expresses a similar idea that the emphasis on teaching has been on the content learned rather than on the effects upon the learner. He says:
"This aim is increasingly prevalent in secondary education and is paramount at tertiary level: it is particularly concerned with the guardianship of knowledge that is prerequisite to professional and vocational education."

(p. 3)

The same problems exist in Malaysian schools and at the tertiary level of education. In the schools large classes, the concern over the completion of the syllabus and the examinations, were some of the reasons given for the passive learning and teacher-centredness which occurs. At the university the focus of concern remains with teaching. Learner-centred courses are not the rule (Tow and Phillips, 1981). The Deputy Vice-Chancellor of the Agriculture University of Malaysia was reported to have said:

"Lecturers in higher educational institutions tend to overlook modern technological developments in teaching technique. They tend to stick too much to the "traditional 'talk and chalk' method. It is not often easy to know if the students are following the lessons."

(in New Straits Times, October 7, 1980)

Perhaps the seriousness and urgency of the situation that calls for remedy, can be reflected by a grave concern expressed in a major local newspaper editorial:

"Are our schools in danger of producing robots? There are many in the educational field who claim that the danger has become an uncomfortable reality. Form Six teachers say many of their students have to be spoonfed, that they are unable to break out of the sheltered cocoon of the previous school years to take advantage of the given opportunities to explore and experiment. University and college lecturers bemoan their students' tremendous capacity to recall facts but not to apply or evaluate them....

The fault rests with the kind of teaching that goes on in classrooms and with the type of examinations offered. Throughout, the focus has been on absorbing facts. Students commit these to memory and recall them for the dreaded exams. And what happens thereafter? How much of what was learnt can still be recollected once the exams are over??...."
It is failure to emphasise skills rather than facts that makes the transition from secondary to tertiary education an almost insurmountable problem for the student. The shift in emphasis in both the primary and secondary schools should be from the 'what' to the 'why' and the 'how'. The child must be trained to reason things out for himself, to apply what he has learnt, to analyse situations, synthesise information and, on a higher plane, to evaluate. Learning should mean acquiring tools. The value of any educational experience, in the final analysis, is how it changes him and whether he comes out of that experience equipped with skills that are transferable."

(Editorsial, New Straits Times, Sept. 10, 1981)

2.2 MISCONCEPTION OF THE TEACHING AND LEARNING PROCESS

While it is easy to recognise the problems and to prescribe that teaching should be learner-centred and that the teacher should hold a managerial role (Hills, 1976; Davies 1971; Tow and Phillips, 1981) the fundamental issues are not easy to explicate. Elton (1972a) explains that the real failure of a lecture that aims only to present a substantial body of facts is that it divorces teaching from learning and concentrates on the former. So what is learning? Milton (1973) describes learning both as a process and a product but he says that the two are not to be confused. Learning as a process refers fundamentally to the functioning of the nervous system, especially the brain. It also refers to activities in which a learner may engage in. Laurillard's (1978) conception of 'student learning' is akin to this view. She attributes it to the kind of high level learning activity students engage in when they are trying to understand their subject. I believe that Elton also refers to a learning of this order when he suggests that a content loaded lecture divorces teaching from learning. He describes a process aim as a learning situation that can make students more active in their learning (Elton, 1973).

Milton suggests that learning, as a product, is a hypothetical construct; that on the basis of changes in the behaviour of the learner, an observer infers that learning has taken place. Elton perceives at least three different types of product aims:

(a) The acquisition of certain knowledge and skills;
(b) Attitudinal changes relevant to the subject studied;
(c) Changes in study patterns, particularly those leading to independence of study.

Teaching that concentrates only on teaching fails to take account of learning as a process. As learning is seen both as a process and a product, it should manifest itself in aspects which are both activity oriented involving students in the process of thinking and understanding, and also oriented to changes in attitude and work patterns.

This confusion is said to be manifested in many of the research findings about teaching and learning in the last fifty years, where learning was misconceived as a product (Milton, 1973; Peterson, 1979; Ramsden, 1981). Learning as conceived in these studies is, I believe, similar to the first type of learning identified by Elton. It is no wonder that McKeachie (1967) and Peterson and Walberg (1979) came to the conclusion that teaching methods do not seem to make much difference. McKeachie reviewed studies at the college and university level which examined lecturing, discussion, laboratory methods, independent study, and automated teaching methods. He found that there "are no significant differences". Perhaps the most cited investigation is that undertaken by Dubin and Taveggia (1968) who examined the raw data of ninety-one studies conducted between 1924 and 1965. These studies examined the relationship between achievement and instructional arrangements of a combination of comparisons of teaching methods: lecture, discussion, lecture/discussion, supervised and unsupervised independent study, television and programmed materials. The authors concluded: "these data demonstrate clearly and unequivocally that there is no measurable difference among truly distinctive methods of college instruction when evaluated by student performance on final examinations". (p. 35) The context and content of learning have been neglected in these studies. Their effects on teaching and learning in higher institutions have been minimal. Ramsden (1981) argues that their influence has been a negative one of becoming part of a mythology of teaching in higher education. On this view, student success and failure is fundamentally caused by individual student attributes such as persistence and ability; different teaching methods have little effect. He says further "that this is a convenient ideology to hold when promotion is largely dependent on concerns other than teaching excellence".
Despite the consistent finding that teaching methods do not make a difference, the persistent belief remains that significant differences do exist. I. Davies (1971) offers an explanation which he quotes from Egon Guba (1959) that "when the evidence produced by any scientific concept or technique continually fails to affirm experiential observation and theory arising from that observation, the technique itself may be called into question". I. Davies concludes with a very pertinent observation:

"No significant differences have been identified, because educational measurement typically involves student performance in final examinations or tests. Such tests and examinations are rarely related to a definition of learning objectives...For the most part, they are concerned with measuring lower order cognitive objectives. Student attitudes, values and beliefs are seldom evaluated..."

Since Dubin and Taveggia's controversial findings, there has been more research which tended to use different research models focusing on a greater range of variables. These are documented in J.R. Davis' (1976) book, 'Teaching strategies for the college classroom'. On the basis of his review of the literature, J.R. Davis finally concludes that "everything matters" and suggests that "to improve teaching the total ecological web of the learning environment" must be examined, but since college teachers cannot control all the variables some at least can be controlled and studied. Also in a review in 1970 McKeachie concludes that small classes seem to be better for basic retention, problem solving and attitude differentiation. Discussion methods seem best for increasing problem-solving ability and for dealing with attitudes and motivation. Large lectures coupled with small discussion sessions seem to be generally more effective than lecture sessions of unwieldy size. The overall theme of his findings is that different methods seem to be effective for different objectives.

The keynote of the extensive research on teaching and learning that I have sampled is that teaching methods do make a difference and there is a greater call for college and university teachers to increase their repertoire of teaching skills (Gaff and Gaff, 1979; Eble, 1976; IUT, 1978; Phillips, 1977; Tow and Phillips, 1981). The Deputy
Vice-Chancellor of the Agriculture University of Malaya says that "there is a need for teachers in higher educational institutions to change their methods and adopt new teaching techniques" (NST, 1980).

2.4 TEACHING TOWARDS INDIVIDUALISED LEARNING

If teaching styles affect learning, what then would be the most effective teaching methods? Anyone would know that this is an unwarranted question because there is no one way to answer it. In any case I would suggest that since the focus now is for learner-centred learning that can promote independent thinking and study methods, and since higher education is now opened to increasing numbers of students of different ability ranges (Campbell, 1964; Cross, 1976; IUT, 1978; Beard, 1970, 1980; Boud et al., 1977), it is reasonable to suggest that a variety of teaching methods would be needed to meet these individual differences. Cross (1976) suggests that "we can have educational equality and excellence for all if we can provide maximum opportunity for each student to develop fully his or her talents". (p. 6)

Although the suggestion is towards diversifying teaching methods to meet the different needs of courses and different individuals, one method of teaching has evolved in the 1960s which has achieved worldwide acclaim as being versatile and adaptable. This is the Keller Plan or Keller's Personalised System of Instruction (PSI). It has generated the most research at college level since the 1960s. The PSI first devised by Fred Keller et al. was first used at the University of Brasilia in 1964 in the Department of Psychology by Keller and his associates when they were dissatisfied with conventional approaches to instruction. The Keller Plan has five defining features. The essential features which distinguish it from conventional instruction are: the formulation of clear course objectives, also made clear to the students; the opportunity for each student to proceed at his own learning pace; the mastery of one unit of study - a unit might be roughly equivalent to a chapter - before proceeding with the next; the use of lectures and demonstrations as vehicles for motivating students rather than as sources of information; the utilisation of both undergraduate and graduate
students as proctors - one proctor for ten students - which permits repeated testing followed by immediate scoring, almost unavoidable tutoring, and enhancement of the personal-social aspect of learning; and placing the responsibility for learning on the student. (in Milton, 1973)

2.5 LECTURING AND INDIVIDUALISED LEARNING: COMPARATIVE STUDIES

The research studies on the Keller Plan have been extensively carried out in the USA and to a lesser extent in the United Kingdom and the Continent. In the USA these have been reviewed and well documented in a number of publications (Kulik, Kulik and Carmichael, 1974; McKeachie and Kulik, 1975; Kulik, Kulik and Smith, 1976; Peterson and Walberg (ed), 1979; Taveggia, 1976). Most of the researches they reviewed compared the Keller and conventional courses in terms of student ratings, final examination results and on long term retention. They established the following points which are well summarised in Mc.Keachie and Kulik (1975)

"1. The Keller Plan is an attractive teaching method to most students. In published reports, students rate the Keller Plan more favourably than teaching by lecture.

2. Self-pacing and interaction with tutors seem to be the features most favoured by students.

3. Several investigators report higher than average withdrawal rates on Keller sections. (In a review by Kulik, Kulik and Carmichael(1974), the contention is made that the conditions that influence withdrawal and procrastination in Keller courses have been studied and it seems possible to control procrastination and withdrawal through course design. For example, one of the recommendations that Green (1971) made was to provide a schedule of dates for passing units which will yield steady rates of work).

4. Content learning as measured by final examinations is adequate in Keller courses. In the published studies final examination performance in Keller sections always equals and usually exceeds performance in lecture sections.

5. Students almost invariably report that they learn more in Keller than in lecture courses, and also report expending more time and effort."

(pp. 173 and 174)
It is significant to note that in their review of ninety-one research studies, Dubin and Taveggia (1968) did not find any significant differences. Yet in a summary of the comparative research on PSI between 1967-1974, Taveggia concludes that the Keller Plan courses are superior to other teaching methods when evaluated by student performance on course content examinations (Taveggia, 1976).

In the United Kingdom, where conditions in the universities are different in many instances to those found in the USA, the Keller Plan has been used with diversification so that different teachers adapt the method differently to suit their own particular needs and environment. The studies in the UK on Keller Plan were less numerous (Elton, Boud, Nuttal and Stace, 1973; Willoughby and Boud, 1973; Boud and Bridge, 1974; Boud, Bridge and Willoughby, 1975; Bridge and Elton (eds), 1977). The findings are similar in terms of the superiority of the Keller Plan over conventional courses. Generally the researchers arrived at the following conclusions:

1. When measured by examination results, students on the Keller Plan achieved higher performance. Faster students covered more than the minimum in the syllabus and there was a reduction in the failure rate.

2. In terms of student behaviour there were students who definitely preferred this method of learning and others who definitely did not. The majority of students fell between the two extremes.

3. The most advantageous facets of the Keller Plan were seen to be the self-pacing aspect and the degree of choice which students can make from the branching system of the content (this is one adaptation of the Keller Plan in the UK course which enables students to choose the order of the content they want to study).

4. A further adaptation is that deadlines are set and these have a strong influence on slow learners whose pace was increased.

5. As was found in the studies in the USA, procrastination is also a problem in the UK. The main drawback of the Keller courses is found to be the ease with which the work can be put off so that the less determined students did not progress very far.
6. Students generally felt that they were more involved in decision making in these courses than in others.

The findings are very impressive and quite conclusive that the Keller Plan is a very effective teaching method from the point of view of examination results and changing student attitudes and its adaptability. Boud, Bridge and Willoughby (1975) in a final note suggest that the Keller Plan used in diversification has made a great impact on teachers. They say:

"Many teachers have found it a very acceptable teaching method and they have been able to use it within the constraints of other present teaching systems. It is undeniably one of the most popular innovations that have been proposed in higher education in the last ten years."

(p. 32)

It is to be noted that in a large number of the studies reviewed, the main criterion for judging the effectiveness of the teaching method had been the results from examinations, and the methodological approaches used have varied from open-ended course evaluations from students with classified comments such as 'positive' and 'negative', to rating scales and informal observations. Some reports have also been based on decisions and commitments made by the students in the Keller courses. The more common strategy used to collect the evidence is to compare the Keller course to the typical conventional course, and the most convincing of all the student-rating studies are those that compare a PSI course with conventionally taught sections in the same subject area (Kulik, Kulik and Carmichael, 1974).

Having established some evidence from the literature that purports the superiority of IL when compared to conventional teaching methods, I will now direct my attention to aspects of lecturing and IL as they affect specific issues in the teaching and learning process.

2.5.1 On Individual Differences and Self-Control

The literature recognises that each individual student has a different potential for intellectual development (Entwistle, 1981)
and, consequently, responds differently to different teaching situations. IL by virtue of its self-pacing aspect can, to a certain extent, cater for these individual differences, something which is very difficult to allow for in the lecture method (Vickers, 1981) because in the lecture all students are treated alike when actually they are different (Entwistle, 1981; Blton, 1979a). Along with individualisation, the student develops a greater control over his own learning. He knows exactly what he has to do, how to do it and when to do it. Each student is responsible for his own progress and he does not and cannot rely on the class average to pull him along as so often happens in a course taught by conventional methods (Pytel, 1978).

2.5.2 On Knowledge Acquisition

From the evidence provided in the review, it is clear that IL produces substantial knowledge acquisition. The evidence to substantiate that the lecture is as good, though not better, than most other methods for knowledge acquisition is also numerous (Hyman, 1970; Rogers, 1977). Bligh (1971) in his book 'What's the use of lectures?' remarks that if other methods are equally effective, it does not necessarily justify the frequent heavy reliance on the lecture method in tertiary education. McLeish (1968) distinguishes between a lecture and the lecture method, and he concludes that the lecture is open to serious criticism if it is used as an all-purpose teaching method. I.K. Davies (1971) from the review of the literature, identifies three situations in which a lecture is likely to be optimal:

"1. Lectures can be successfully used to realise lower order cognitive objectives and the method is particularly efficient if large numbers of students are involved.

2. Lectures can be successfully used to realise the very highest order cognitive objectives, by providing new views and organisations of knowledge.

3. Lectures can be successfully used to realise affective objectives (but only if the method is occasionally employed and is handled in a skilful manner) such as when a lecturer inspires an audience with his own enthusiasm and captures their imagination."

(p. 164)
Sheffield (1974) and Ericksen (1974) also suggest that the lecture is effective when certain materials are not readily available or require updating. In particular, the lecture can arouse interest if the questions are centred around what is not known or around problems rather than around mere recitations of facts.

Although the lectures have the potential of promoting effective learning, as the above comments indicate many lecturers often fail to capitalise fully on the unique properties of the strategy. All too often they regard the lecture as a mere communication strategy where the instructor is to cover the material and explain the textbook (Milton, 1973; I.K. Davies, 1977).

There is often not enough stimulation given in the lectures and Heim (1976) suggests that the lecturer should not attempt to fulfil the same functions as books. All students can read. "Moreover, they can read relaxedly, at their own pace, in their own chosen surroundings." (p. 13) The self-pacing aspect of IL allows this kind of relaxed learning from already prepared materials with study guides or textbooks with study guides. As Crompton (in Piper et al, 1978) writes "knowledge transmission can best be done in the written form, because then content and form can be prepared most carefully, and the student can work through the material at his own speed, and, if necessary, repeatedly. Once written down, no teacher is needed to pass the information to the student". (p. 80)

There is, on the other side, a category of opinion which criticises learning from prepared texts with guides as spoonfeeding or 'prescriptive'. Unsworth (1978) found that some teachers accuse the use of study units, which suggests detailed reading and exercises, as amounting to spoonfeeding. Romiszowski (1978-1979) also perceived that the Keller Plan has been criticised as prescriptive and, therefore, at tangent with the aim of developing greater student responsibility in the learning process. Young (1973 in Donoghue and Bajpai (1974)) objects to IL because learning "requires an open-ended process of involvement between professor and students" and is not therefore a "patterned acquisition of information" as in IL. Both Unsworth and Romiszowski saw that students would experience greater risk of losing direction if not properly guided. Unsworth suggests that merely providing a syllabus and booklist invites the undesirable danger, always present in individual private study, of reaching an
impasse if further progress is blocked by some failure of comprehension or reasoning, or some unrecognised critical factor, so that guidance in the unit to suggest suitable reading and alternatives, and point out areas of difficulty, may be an important factor in helping the student to develop the ability and confidence to handle and select study material for himself (p. 136). Romiszowski contends that higher education has a long tradition of individualised teaching based on the tutor, on projects and essays, on small group seminars - methods which can be much less prescriptive and much more student-directed - if handled in the right way (p. 55). Elton (1979) also suggests that few students can study by themselves from textbooks alone. On the other hand, they can study by themselves if the textbooks are supported by structured learning materials.

2.5.3 On Understanding, Retention and Transfer

Nine studies reviewed by Kulik, Kulik and Smith (1976) have investigated the effects of the Keller Plan beyond the final examination, on its long term impact on students over intervals ranging from three weeks to fifteen months. In each of the studies, the Keller students performed better on a follow-up examination than students from lecture courses, and in each study the difference between groups reached statistical significance.

Five transfer studies, reviewed by these authors also shed more light on the nature of student learning in Keller courses, for example, in a transfer study, groups of students learned course material by the Keller method and a conventional method, and then they were examined on a subsequent common course. The Keller students were found to outperform the other students in the follow-up courses.

Kulik et al., on the basis of these findings, concludes that the Keller Plan promotes something more than rote memorisation, and that these studies suggest, therefore, that the Keller Plan is useful not only in the teaching of factual information, but also in the teaching of meaningful concepts and applications. Peterson (1979) indicates that long range retention of Keller learners suggests organised learning. Facts, information and concepts are quickly forgotten if they are not organised and interrelated (Peterson, 1979).
In addition, transfer studies show that Keller students learn general skills that transfer to new situations. Related to this Kulik et al. concludes with three hypotheses. One hypothesis stresses transfer of course content. The Keller student's greater knowledge and his clearer understanding provides him with advance organisers that make new learning more efficient. Another possibility is that the first Keller course provides a first encounter with a subject, and helps build the student's sense of competence in a discipline. Under this hypothesis, what transfers is not specific knowledge and principles, but positive attitudes. A third possibility is that students pick up good study habits in Keller courses; they learn how to learn independently. (p. 24) Hedges (1978) expresses similar impressions about student learning in IL ie Keller students received higher grades because they had developed habits or skills which fostered content acquisition. It may be possible, I feel, that all three conditions (Kulik et al.) are operating in student learning from IL, because one is contingent on the other, so that greater knowledge and understanding can have the effect of arousing interest and motivation thus inducing positive attitudes which, in turn, may induce good study habits. It may also be true that IL induces good study habits which help better understanding and hence better attitudes. So far the research on the Keller method has not looked at study methods and habits as focal issues. Any findings which are related to these issues have come up as side issues from the general impressions of the students.

In relation to 'learning with understanding' this appears to be subsumed under the aspects of retention and transfer. Research that directly investigates the process of students' understanding of IL materials and the lecture is negligible. Nonetheless, one can also look towards studies by psychologists which show that the teaching methods most likely to motivate students to learn are those which actively involve them, lead to a sense of achievement, and maintain a high level of arousal (Beard and Senior, 1980). Beard and Senior also suggest that whatever students do as part of an activity or experience, it is essential that they should think reflecting on its implications and what they have learned from it. I believe it is this act of thinking and reflecting that brings about understanding.
About thinking, Bligh (1971) says that "if students are to learn to think, they must be placed in situations where they have to do so. The situations in which they are obliged to think are those in which they have to answer questions because questions demand active response. Although it could be modified to do so, the traditional expository lecture does not demand this..." (p. 13)

The lecture, on the other hand, is known to evoke passive learning. McLeish (1968, p.9) discovered that "students carry away in their heads and in their notebooks not more than 42% of the lecture content. This was the conclusion of a research study conducted in England under most favourable conditions. Students were told that they would be tested immediately following the lecture; they were permitted to use their notes; they were given a prepared summary of the lecture. When the students were examined one week later without the use of their notes, they could recall only 17% of the lecture material. The lecture is usually presented in a manner that does not allow students time for pausing and reflecting. The process of taking notes itself can also be a diversion from understanding (Rogers, 1977).

2.5.4 On Work Patterns and Study Habits

Some of the literature in relation to study habits and work patterns has already been pointed out. Students studying from the lecture have been known to ' cram' at the last moment before examinations (Ericksen, 1974). IL involves hard work (Elton, 1972a; Kulik, Kulik and Carmichael, 1974), but the reaction to the hard work has different implications for different students. Elton (1972b) in describing three courses which involve self-study on the students' part, suggests that when involved in self-study the students enjoyed their work more, worked harder and were more successful. While this may be so, students who lack self-discipline may not be ready or comfortable in this pattern of work so that, as a consequence, the burden of self-pacing becomes frustrating (Cross, 1976) and procrastination then becomes a problem. In most cases this has resulted in students experiencing and reporting a sense of failure (Unsworth, 1978). Procrastination is a learning phenomena which is also present in the lecture, but is not so obvious to teachers and students (Boud,
Bridge and Willoughby, 1975). Buzdugan (1978) in an evaluation of a Keller course in Electronic Circuits and Systems, discovered that students show a reluctance to explore available resources even when they were aware of the need, although the students claimed to be tackling a significant proportion of the problems set, and they indicated a general wish for more problems. A similar finding is by Willoughby and Boud (1973) who found no evidence to prove that students take more personal initiative towards the problems set. Buzdugan suggests that the wish to have work prescribed rather than to use one's own initiative may also lie behind the strongly expressed desire for more lectures. The conclusion that he draws from this study is that it is understandable that the student wishes to minimise his effort but "it is no less certain that the student must be trained to seek solutions to his difficulties by independent means".

The evidence of the effects of IL and the lecture on work patterns and study habits is by no means conclusive although the evidence is strong that for students who are conscientious and motivated, IL affords an acceptable challenge to hard work. The general feeling it would seem is for training students to work independently as Buzdugan implies. It would also seem that learning from IL leaves students more time for revising and transferring their effort to other courses (Unsworth, 1978), therefore demonstrating a learning situation which enables the students to learn progressively and systematically and avoid a last minute rush as often happens with the lecture mode. As Elton (1972c) and Lindstedt and Berg (1978) suggest, it might be possible to motivate students "intrinsically, through interest in the method of work". The students too are said to learn perhaps for the first time, how to read a textbook and how to teach himself - skills which will help him throughout his professional career (Pytel, 1978).

2.5.5 On Contact with Lecturer

The lecture is most often criticised because of the lack of interaction between staff and students and between students and students. The fact that it is a large group process constitutes one of its biggest weaknesses (Hills, 1973; Phillips, 1977). The learning situation presented in the lecture situation is seen to be
incongruent with the aims of higher education which is to produce a confident, self-directing individual. It is not possible to achieve these aims if the students are huddled together in a large theatre where they can hardly interact intellectually with their peers and lecturers.

With IL, in which the materials are presented in the printed form, there is more time for the lecturers to communicate and relate with their students. Many of the lecturers who have used IL in one form or another (Bridge and Elton (eds), 1977) have testified to this and they have also indicated that students' reaction when evaluated was very positive to this aspect of IL. In fact, personal contact using graduate students as proctors and to a lesser extent, undergraduate students, is considered to be the most attractive feature of the Keller method (Boud, Bridge and Willoughby, 1975; Unsworth, 1978). This feature of the Keller Plan is typical of most courses in America, but in the UK, IL has become relatively diversified to include, for example, teacher-paced IL (Cryer and Manwaring, 1977). In courses in which the class enrolment is small - fourteen to sixteen, the lecturer himself may play the role of a proctor with equal satisfactoriness from the point of view of student satisfaction (Bridge and Elton, 1977). The lecturer too expresses a sense of satisfaction derived from a meaningful closer relationship with his students. Where the classes are bigger - thirty or more - one tutor in a teacher-paced IL course may not be able to handle all the students, unless additional help from other staff members or postgraduates are forthcoming. Cryer and Manwaring (1977) see the potential of tutorial help given in groups because the group's state of knowledge is more uniform. In such situations teachers and students can help one another, besides providing that intrinsic value and a feeling that the personal contact involved is helpful. (p.171)

Not many students have investigated IL with small group discussion. Brewer (1977), Brewer (1979), Brewer and Tomlinson (1981), and Lopez and Elton (1977) are perhaps the only studies that have investigated IL with group activity. Brewer, whose teaching involves using self-instructional modules and interactive groups, indicates that these two methods of teaching constitute a complementary process which is not only popular with students, but gives rise to more effective learning,
as shown by the results of continuing assessment and final student achievement relative to traditional methods.

2.5.6 Personal Development

With the lecture system students often attribute success to 'good teaching' instead of recognising their own achievement. In a longitudinal study of forty science students at the University of Sussex (Eraut, 1975), students attributed their success to good teaching and when they did poorly they blamed this on their own failings. Individualised learning in which the students are personally involved in their learning brings a sense of personal achievement which, if well reinforced by the lecturer, can evoke greater satisfaction (Unsworth, 1978). In almost all the literature surveyed, students' satisfaction in IL courses has been associated with the mastery aspect of IL.

2.6 IL IN CONFORMITY WITH LEARNING PRINCIPLES

The review I have done is by no means exhaustive, but it is ample to substantiate the conclusion that IL is a more effective teaching method when compared to the lecture. Aspects of this teaching mode can be said to conform to the principles of learning which EURICH (1962) of the Ford Foundation identified as:

"1. Whatever a student learns, he must learn for himself - no one can learn for him.

2. Each student learns at his own rate, and, for any age group, the variations in rates of learning are considerable.

3. A student learns more when each step is immediately strengthened or reinforced.

4. Full rather than partial mastery of each step makes total learning more meaningful.

5. When given responsibility for his own learning, the student is more highly motivated, he learns and retains more."

(In I.K. Davies, 1971, p.21)
The evidence from the literature substantiates most of these principles although the question of full mastery remains a debatable issue (Cross, 1976). Boud, Bridge and Willoughby (1975) found that some courses students did not feel that they had fully mastered the material when they passed a test.

2.7 THE APPLICATION OF IL TO THE MALAYSIAN CONTEXT

The literature that points to the superiority of IL over the lecture in many aspects of learning is quite impressive. However, the Keller Plan or its adapted version as it was used in this study has not been introduced in Malaysia as yet.

Perhaps the only relevant study about teaching and learning in higher institutions in Malaysia is by Phillips (1977). I have made occasional references to his findings in section 2.1. The purpose of the following review is to present a slightly more detailed report of Phillips' findings about the teaching and learning conditions in a higher institution in Malaysia, and what implications these may have on my own study.

2.7.1 Phillips' (1977) Findings

His findings are summarised below.

1. The lecture and the tutorial are the two most extensively and frequently employed modes of instruction.

2. The use of independent learning activities (considered as project work) is limited. These students who had engaged in project work wanted to be more frequently involved.

3. The lecture will continue to be the dominant teaching method as evidenced by the preference of the students for the continued utilisation of the lecture method.

On the other hand although more than half of the students sampled considered their lectures boring or not conducive to promoting critical thinking, the majority, nevertheless, agreed that this mode of instruction was useful in terms of preparing students for examinations.
4. The students were by no means satisfied with the presentation of lectures.

5. Students' and teachers' views on the optimum number of students in a lecture session differed markedly. The students felt that the lectures were too crowded while the teachers felt that the class size for lectures was 'just right'.

6. The employment of teaching and learning materials in most faculties is limited.

7. Assessment is based on end of term examinations where essay questions predominate.

On the basis of these findings, one of the recommendations that Phillips makes is:

"Teachers should make efforts to improve the quality of instruction. Attempts should be made to explore the possibility of using varied teaching and learning methods. Independent learning activities should be more widespread."
(p. iv)

Clearly, Phillips' study points to the need and urgency of research into teaching and learning with particular reference to independent learning activities. He has also pointed out the inadequacies of the lecture and tutorials which are the two most predominant methods of teaching currently used. These methods were perceived not to be very efficient for inducing student learning by both lecturers and students.

Phillips' findings and the impressive literature about the effectiveness and adaptability of IL (Boud, Bridge and Willoughby, 1975) within the constraints of different teaching systems, have alerted me to aspects of the Keller Plan which may have application to the Malaysian context. However, so far little is known about the acceptability of the method to lecturers and students. There is a need, therefore, to initially assess the reaction of these potential users within the constraints of a Malaysian system. Hence the initial exploratory study was proposed and carried out. The specific purpose and results of this preliminary study are laid out in Chapters 3 and 4.
2.8 CONCLUSIONS

1. Effectiveness in teaching and learning in higher institutions is a universal issue which is the subject of much research. There is much dissatisfaction with conventional teaching which is considered teacher-centred. Although the same problem besets higher education in Malaysia, there has been negligible research in the area of teaching and student learning. This has implications on the direction that educational research should take in the context of Malaysia considering that the call for lecturers to increase their repertoire of teaching skills is quite substantive.

2. The two most predominant methods of teaching in the University of Malaya are the lectures and tutorials which have been found to be unsatisfactory methods of inducing student learning. There is a greater concern for promoting independent learning.

3. The indirect implications of the research findings on lecturers is that there is a need for teachers in higher institutions and colleges to acquire some basic skills in teaching by formal or informal training. More importantly, teachers ought to continue to update their knowledge of new techniques that educational technology can offer, and improve their teaching skills by exposure to new methods of teaching that can promote effective student learning.

4. The most recent teaching innovation to hit the educational scene is individualised learning in the form of the Keller Plan. Its features have made it possible for the technique to be adapted in the most flexible manner to suit the individual needs of a particular course and a particular teaching and learning environment.

In the West IL has been found to be effective in terms of measurable achievements, transfer and retention of knowledge, students and faculty have also generally found IL to be satisfactory. They have found the basic features of self-paced, student-tutor interaction, and mastery both attractive.
and beneficial to the temperament of individual students.

The success of individualised learning which has been much documented, has implications for teaching and learning in the Malaysian context, where the general conditions appear to favour a research in this direction.

This chapter concludes with a final keynote that

"teaching must focus on student learning. Today's college students are different from those a decade ago...With this new clientele comes the pressure for faculty to become competent in a broader variety of teacher styles and methods. To correlate their teaching more closely with students' learning patterns, teachers are increasingly involved with experimentation with an adoption of new teaching techniques."

(Gaff and Gaff, 1978, p.23)
3.1 INTRODUCTION

Chapters 3 and 4 describe my earlier exploratory project, the findings of which became the basis for thinking and suggesting the directions the main study was to take.

Three main considerations were important in initiating this study into teaching and learning in Malaysia. These were:

1. The evidence strongly suggests that in Malaysia teaching and learning are neglected issues needing urgent attention. There is a call for teachers in higher institutions to increase their repertoire of teaching skills by taking advantage of educational innovations for the purpose of improving student learning.

2. Phillips' study (1977) is significant in pointing out the inadequacies of the present teaching and learning conditions in which the lecture and tutorial are the most predominantly used methods. However, the students were by no means satisfied with the conduct of the various teaching modes. He also points to the need for more independent activity by students.

3. One such teaching method which is claimed to be very effective for developing student independent learning is IL. Many research studies also confirm its application in a wide variety
of teaching systems. (See, for example, 'Teaching by Keller Plan - comment on a course in Spain', Elton, 1979c). However, this research is predominantly based on Western student populations.

A case can, therefore, be made for the investigation of IL in the Malaysian context as I contend that IL has applicability in Malaysia. This was initially based upon a notion I had and some supportive literature. Consequently, I felt I needed more evidence with regard to the acceptability of IL by students and lecturers within a Malaysian context. Other than this, the pilot study was carried out also for the following reasons:

1. Phillips' study focuses on students' and lecturers' perceptions to instructional modes which are most commonly in use. I felt it was also useful to look at lecturers' perceptions of the effects of teaching methods on student learning including those not in much use, or in which they may have a knowledge of but little experience in using, eg IL. Chapter 3 is devoted towards reporting the results of this preliminary study.

2. There was a need to explore the feasibility of implementing a research design for the proposed main study using ILM as the basis for teaching in the Faculty of Education, University of Malaya. In this context I designed a semi-experimental study using a research methodology which is both quantitative and qualitative. Phillips' methodological stance was quantitative in approach. The outcome and consequence of this part of the pilot work is discussed briefly in Chapter 5.

3. Working on the premise that the proposed study on IL in Malaysia would be viable, I devised a set of individualised learning materials (ILM) which would be appropriate for the group of students I had in mind. More of this will be explained in Chapter 4.
3.2 LECTURERS’ KNOWLEDGE AND EXPERIENCE OF A RANGE OF TEACHING METHODS

3.2.1 Introduction

The research questions which form the focus of this pilot study were:

(a) What is the lecturers' knowledge and experience of a range of teaching methods and their conception of these methods?

(b) What learning skills and abilities are perceived by lecturers to be important and what teaching methods do lecturers perceive as appropriate for developing these skills?

(c) How do lecturers perceive IL and the lecture in terms of student learning?

(d) Do lecturers perceive IL as viable and appropriate for student learning in the Malaysian context?

3.2.2 Procedure for Data Collection and Analysis

3.2.2.1 Process of developing Questionnaire I

The first draft of the questionnaire was pretested with a group of six lecturers at the Faculty of Education by post. The lecturers who were piloting the questionnaire were requested to answer the questionnaire as well as write their comments directly on the questionnaire. On the basis of their comments, the questionnaire was revised and improved. A specimen of Questionnaire I, Lecturer Questionnaire on Teaching and Learning (in Higher Institutions) in the University of Malaya (QI-TALUM) is in Appendix A1. The questionnaire consisted of closed and open-ended questions, rating scales and matrices which lecturers were asked to complete.

3.2.2.2 Administration of questionnaire

As planned the pilot study was carried out between...
August and September 1980 in the University of Malaya. Altogether 612 lecturers, not including tutors, in nine Faculties (Arts, Economics, Education, Engineering, Law, Medical, Dental, Science and the Language Centre) were included in the survey.

The questionnaires were delivered in bunches personally to each Faculty Dean or Deputy Dean. Every bunch delivered was accompanied with a letter from the Deputy Vice-Chancellor. I also made personal contact with either the Dean or Deputy Dean. The teachers were at first given two weeks to respond to the questionnaire. At the end of the two weeks, a reminder was sent out to them and they were then given a further two weeks in which to return the questionnaire to the Secretary of each Department. Subsequently, I collected the questionnaires myself. Some of the lecturers preferred to post their questionnaires directly to me.

3.2.2.3 Analysis of the data

As the number of questionnaires returned was not large, the analysis was done manually in most instances except in the case of the matrices which were analysed using the FOCUS computer program (Shaw and Thomas, 1978).

Most of the data were summarised descriptively by using frequency counts and percentages and, where relevant, the descriptive analysis was illuminated with verbatim quotes from the lecturers' open responses.

The results which are reported here are based on an analysis of 84 questionnaires that were returned. The breakdown of the percentage response in terms of the separate Faculties is presented in Table 3.1. Suffice it to conjecture at this point that the 14% response return may represent the bias view of lecturers who are interested and are concerned about teaching and learning, and/or it may represent the view of people who may have grievances to air. Whatever findings and implications there are, therefore, can only be tentative and inconclusive. Nonetheless, as an exercise at exploration,
the results highlighted important issues and alerted me to the research content and other methodological problems which were important to consider when carrying out the main study. The report and discussion of the findings below are related to the research questions on p. 3.3.

<table>
<thead>
<tr>
<th>FACULTIES</th>
<th>No. of Q. distributed</th>
<th>No. of Q. returned</th>
<th>% Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts</td>
<td>118</td>
<td>18</td>
<td>15.3</td>
</tr>
<tr>
<td>Economics</td>
<td>65</td>
<td>10</td>
<td>15.4</td>
</tr>
<tr>
<td>Education</td>
<td>37</td>
<td>16</td>
<td>43.2</td>
</tr>
<tr>
<td>Engineering</td>
<td>37</td>
<td>5</td>
<td>13.5</td>
</tr>
<tr>
<td>Law</td>
<td>20</td>
<td>2</td>
<td>10.0</td>
</tr>
<tr>
<td>*Medical/Dental</td>
<td>169</td>
<td>16</td>
<td>9.5</td>
</tr>
<tr>
<td>Language Centre</td>
<td>15</td>
<td>2</td>
<td>13.3</td>
</tr>
<tr>
<td>Science</td>
<td>151</td>
<td>15</td>
<td>9.9</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>612</strong></td>
<td><strong>84</strong></td>
<td><strong>13.7</strong></td>
</tr>
</tbody>
</table>

*I have collapsed the responses of these because they represent a similar discipline.

Table 3.1 Percentage Responses Of Lecturers To Q1: TALUM In Nine Faculties, University of Malaya, Kuala Lumpur.

3.2.3 Summary of the Findings and discussions

The lecturers were asked the extent of their knowledge and/or experience with particular teaching methods. The terms 'a lot of' and 'very good' proved difficult for the lecturers to interpret because they were said to be value laden. In the analysis I have collapsed the positive and negative responses eg 'very good' was collapsed with 'fairly good' to form a positive response, while 'very little' and 'not at all' were collapsed to form a negative response. In the final analysis what counts I feel is whether lecturers 'have' or 'have not' the knowledge and/or experience. Table 3.2, Appendix A2, represents the lecturers' knowledge of and experience in using a range of teaching methods.
On the basis of this and a few other quantitative results laid out in the Appendices, the findings are now summarised and discussed, but it must be stressed that these findings are by no means conclusive.

(a) Phillips' finding is endorsed, i.e., a high proportion (95.8%) of the lecturers have knowledge of the lecture and 93.2% of the tutorial. 98.5% have experience in presenting lectures and 97.5% in conducting tutorials. The small percentage who indicated a lack of knowledge or experience constituted newly employed lecturers to the academic establishment of the University of Malaya. The lectures, tutorials, and seminars were the most common methods used. However, judging from the low figures of trained staff (Table 3.3, Appendix A3), it may be inferred that knowledge and experience in these may have come from the experiences of having been taught by these methods. It is noted that lecturers often teach the way they were taught (Elton, 1979b).

(b) Except in the Faculty of Education, the majority of the lecturers have indicated that they had 'very little' or 'no' knowledge of or experience at all in micro teaching. This is not unexpected because generally only lecturers who have had the benefit of teacher training would have had some exposure to micro teaching. This may imply that the majority of the lecturers lack pedagogical training. The evidence of this is provided by the lecturers' responses (Table 3.3, Appendix A3) in which 36.9% indicated that they had formal pedagogical training, but of the 36.9%, 18% were lecturers at the Faculty of Education.

(c) The lecturers seem to indicate having more experience in IL than knowledge or experience in micro teaching (Table 3.4, Appendix A4), but this remains low.

(d) Laboratory teaching is biased towards the Science, Engineering and Medical Faculties (Table 3.2, Appendix A2).
(e) The lecturers in the Medical Faculty reported using a variety of approaches such as demonstration of techniques, bedside teaching, simulated exercise, field visits, group discussions, and to a certain extent IL. It is significant that it may be determined from the literature in the UK "that medical education has, perhaps, led the academic field in the adoption of individualised instruction and independent learning methods" (Clarke, 1980).

(f) The lecturers in the Faculty of Education have a wider knowledge and experience of a wider repertoire of teaching skills, a finding which concurs with Phillips' finding. This is not surprising as education lecturers are in the business of training teachers. This should have implications on the role of the Faculty of Education in assisting towards staff development if the need arises. Although a high percentage of the lecturers in the Faculty of Education indicated having a knowledge of IL, only about 56% indicated having an experience of using IL.

(g) Attempts at trying different methods seem more common in the sciences than the humanities, except in education. One could ask the question whether the nature of the subject has anything to do with this. Phillips (1977) made a similar observation that "the absence of a specific instructional activity may be attributed to the distinct features of the field of study which need not involve certain modes of instruction" (p. 190). On the other hand this could be due to a lack of knowledge and to a lack of exposure to the development of recent technology in teaching and learning. Perhaps, too, if the lecturers have been trained, they have not updated their knowledge and skills to incorporate the new approaches to teaching and learning. The evidence in Table 3.3, Appendix A3, suggests that a lack of training may be a factor affecting the lecturers' teaching styles in many of the Faculties (61% in Arts, 90% in Economics, 60% in Engineering, 75% in Medical/Dental,
80% in Science indicated that they had no formal training in teaching. The lecturers who had received informal training were also small in number (20% in Economics, 19% in Medical/Dental, 13% in Science).

The results from such a small data are not conclusive nor can they be generalised in any meaningful way. The large percentage of the lecturers who did not respond may render this tentative result untenable. More research is needed in this direction.

(h) The responses of the lecturers to IL in each Faculty are tabulated in Table 3.5 overleaf.

Some general inferences can perhaps be made on the basis of the comparative percentage responses. Individual lecturers have used IL of some sort or other in almost all the Faculties except the Economics Faculty, but the figures are not very high. If one can infer that NR (no response) represents no knowledge or no experience, then it would be possible to suggest that a high percentage of the lecturers in most of the Faculties have had little or no knowledge or experience of IL. However, I do not think the assumption can be made without possibly misrepresenting the lecturers' views and attitudes.

It may be more useful at this point to first of all discuss the lecturers' conceptions of IL and other teaching methods.

3.3 LECTURERS' CONCEPTIONS OF TEACHING METHODS

3.3.1 Introduction

The lecturers' conceptions of teaching methods vary from faculty to faculty and within faculties. In Questionnaire 1 (TALUM) the lecturers were invited to provide definitions not only of the most commonly used teaching methods such as the lecture, tutorial and seminar, but also of micro teaching and IL. I did not expect every
<table>
<thead>
<tr>
<th>Faculties</th>
<th>Use of IL (a)</th>
<th>Knowledge (b)</th>
<th>Experience (c)</th>
<th>Need to Supplement Lecture (d)</th>
<th>IL Viable to Supplement Lecture (e)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Subjects</td>
<td>Yes % NR %</td>
<td>V.Good/Some % Little/None %</td>
<td>A lot/Some % Little/None %</td>
<td>Yes % No % NR %</td>
</tr>
<tr>
<td>ARTS</td>
<td>18</td>
<td>22.2 77.8</td>
<td>27.8 22.2</td>
<td>50</td>
<td>27.8 22.2</td>
</tr>
<tr>
<td>ECONOMICS</td>
<td>10</td>
<td>0 100</td>
<td>30 40</td>
<td>30</td>
<td>20 50</td>
</tr>
<tr>
<td>EDUCATION</td>
<td>16</td>
<td>37.5 66.5</td>
<td>75 18.8</td>
<td>6.2</td>
<td>56.3 43.7</td>
</tr>
<tr>
<td>ENGINEERING</td>
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<td>20 80</td>
<td>20 40</td>
<td>40</td>
<td>40 60</td>
</tr>
<tr>
<td>LAW</td>
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<td>50 50</td>
<td>50 50</td>
<td>0</td>
<td>50 0 50</td>
</tr>
<tr>
<td>LANGUAGE CENTRE</td>
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<td>50 50</td>
<td>50 0</td>
<td>150</td>
<td>50 0 50</td>
</tr>
<tr>
<td>MED/DENTAL</td>
<td>16</td>
<td>25 75</td>
<td>37.5 31.3</td>
<td>31.2</td>
<td>25 43.8 31.2</td>
</tr>
<tr>
<td>SCIENCE</td>
<td>15</td>
<td>26.7 73.3</td>
<td>40 40</td>
<td>20</td>
<td>40 26.7 33.3</td>
</tr>
</tbody>
</table>

Note: Aspects of IL (d) and (e) will be discussed in section 3.5 from p. 3.21

Table 3.5 (a) Percentage Response of Nine Faculties to Knowledge, Experience in the Use of IL Method (b) Viability of IL to Supplement Lecture Method.
respondent to be able to furnish me with definitions of every teaching method listed in the questionnaire, but I expected to obtain an idea of how the lecturers viewed certain teaching methods from their own frame of reference, even if they had not received any formal pedagogical training. As long as they indicated having some knowledge and/or experience in particular instructional modes, then they might also logically be assumed to hold particular conceptions about those modes.

About 50% of the lecturers provided definitions. Of these there was overall agreement as to what constitutes the lecture, but there is evidence that other methods were conceived differently. This section examines the varied definitions of some teaching methods. A summary of the recurrent features which are identified in the definitions is presented in Table 3.6, Appendix A5.

3.3.2 Summary of Definitions and Discussions

(a) Lecture
It was briefly described across faculties as a one way formal verbal presentation of facts by a lecturer to a large audience with little or no student feedback.

There was agreement in perception across faculties that lectures are transmitted to a group of passive students.

(b) Tutorial
There was similar agreement among the lecturers with respect to their conception of the tutorial as being a small group two way teaching method between students and lecturers. The lecturers, however, differed in what they stated as the purposes of the tutorial. The more frequently stated purposes of the tutorials were (please see Table 3.6, Appendix A5 for other purposes):

"clarification or intensive discussion of lecture topics";

"discussion of previously set questions, problems or topics".

Only two lecturers identified 'give individual attention' as a purpose of the tutorial. One lecturer in the Faculty of Education suggested that the tutorial:
"Refers to a class meeting of an hour or so between an instructor/lecturer and a group of students small enough to enable some form of dialogue and the giving of individual attention by the instructor/lecturer to the students to be made possible in the class."

It may be noted that the focus in this quotation is on the student rather than, as previously stated, on the subject matter. A seminar is distinguished from the tutorial because its focus is on the subject matter (Hale Report, 1964). I suspect that many lecturers were uncomfortable to describe the tutorial as an occasion for a more individual student-centred teaching and learning situation because as it is commonly known, (Phillips, 1977) the number of students in a tutorial in Malaysian institutions far exceeds the number recommended in the Hale Report. The Hale Report suggests a limit of four students. There is some hint of this feeling of discomfort in the quotation of the following respondent:

"Certainly not what it often becomes and what many students expect - ie a mini-lecture rather than a 'happening' a real exchange of views, a cooperation/collaborative learning situation. Certainly not tuition. The group should be kept small (no more than 5/6). Not so much a method as a situation unlike a seminar in which learning is more guided/structured/rigged and in a sense more artificial."

It is to be noted that the onus for effecting 'that happening' was seen to rest with students. The suggestion was that students expected tutorials to be mini-lectures and that was inevitably what happened during tutorials.

Within the tight time scheduling and large student enrolments and the shortage of staff in a Malaysian situation, there is still I think the necessity to consider what is the primary purpose of the tutorials. Tutorials should not be conducted solely for the clarification of lectures. Even within larger tutorial classes, some kind of individual help may be rendered. Learning can be made more
independent and individualised through smaller group interactions, leaving lecturers free to move around to offer individual help (Lopez and Elton, 1980).

Clearly in a Malaysian situation individual tutorials with a group of four students is an ideal to aim at but hardly feasible at the present time. Nonetheless, the tutorials have been defined and utilised to suggest the flexible use of the tutorial method in some faculties. For example, in the Medical Faculty tutorials are regarded as small group teaching situations as these two quotations illustrate:

"In our context, tutorials are teaching/learning sessions held in small groups - these would include case presentations, case conferences, discussions during the conduct of surveys etc. - in other words - small group teaching."

"Topic defined. Objective defined. Small group of students (preferably up to 12). Tutor using BACIE discussion leading technique; students answer questions themselves and also evaluate colleagues' answers (tutor does not evaluate except where group cannot). Tutor introduces no new information other than that taught in previous teaching sessions."

(c) Seminar

There was greater variability in the conceptions of the lecturers to the seminar although there was general agreement that in the seminar the topic has been researched in advance. This concept of a seminar is the same as that defined in the Hale Report (1964). Here the seminar is described as a teaching situation of between seven and twelve students which normally begins with the reading of a paper or essay written by a member of the seminar group, and this is followed by discussion. This makes the assumption that members in the seminar group have the same interest in the subject being discussed. Eble (1976) is more explicit in suggesting that a seminar is "a small number of intensely interested and knowing individuals letting their minds play on a common topic (p. 7)."
In fact Eble further explains that a seminar is a "small group of students, as in a university, engaged in advanced study and original research under a member of a faculty and meeting regularly to exchange information and hold discussion". A number of the lecturers defined the seminar rather as a teaching device for assessing students' work as these quotations demonstrate:

"It refers to a method of teaching whereby a student is given a topic to write and the result of which is read in front of other students and lecturers to be commented upon and criticised by them."

"Seminars - where one student in every tutorial group is asked to present his/her term paper (work done over holidays) and the others comment and criticise the work - lecturer coordinates and guides the tone of the seminar. Input more from individual student presenting paper."

Seminars have also been described as an 'address' either by a student or panel of students to an audience of students as the following quote reflects:

"Discussion of a given subject or issue by a panel of students who have decided to present the subject or issue in a certain way. (Subject given by faculty, preparation and presentation by students, moderation and final comments by faculty) Audience are students."

The more usual conception of the seminar refers to a presentation of a prepared topic by an individual student in which the comments and criticisms are left to the end.

It would appear that the seminar has been interpreted and used in a variety of ways presumably with different results. This has implications for future research. This study based on a small sample can only to some extent reflect teaching methods as they are currently practised or conceptualised. It is not the main intention of the study to research into the efficacy of different teaching methods and the impact of each on student learning. Rather it is to establish reasons for
suggested the use of teaching methods which can result in the maximisation of student learning. It would appear that the seminar as it is practised currently contravenes its main purpose which is to bring a group of students together (about twelve) to discuss fruitfully a subject that each member in the group has enough knowledge of, and for which they have researched sufficiently well.

Again, in the Malaysian context, except in some faculties like the Medical Faculty and in postgraduate courses, seminars of up to twelve persons are not very common. Usually, like the tutorials, they are large in numbers.

(d) Other methods
- Less used or used in particular faculties to meet the different fields of study are as follows:

Laboratory teaching: mostly used in the Science Faculty as a teaching situation in which students apply practical work to theory in investigative situations. At the Medical Faculty laboratory teaching involves microscopic studies or 'working on set tasks'. At the Education Faculty there is a similar underlying reference of practice to theory in language teaching.

Micro teaching: is essentially an activity of applying practical skills in a simulated teaching and learning situation in front of a camera as used in the Faculty of Education. Two medical lecturers have defined micro teaching as working in small groups with two or three students using audio visual aids or teaching in small groups of four to fifteen where interaction is between students (a definition quite remote from the definition applied in the Faculty of Education).
Workshop
There was fairly good agreement among the lecturers on the
definition of workshops as working sessions in which problems
are identified, discussed and solved and proposals presented.

Individualised learning
Only one lecturer attempted to define IL as guided
reading at the Masters of Education, (MEd) level, or a
teaching situation as defined in Q1.TALUM (Appendix A1),
but not necessarily with study guide. Two other lecturers
merely supported the same definition. One other lecturer
in the Law Faculty defined IL as similar to a lecture.

"The imparting of basic principles, methodology
of studying of the subject and presentation of
major issues. This is more a guide to the
subject than dictation of information found in
textbooks."

The few responses to IL by the lecturers and the deviation
of the definition from the one that is commonly acceptable,
may reflect a lack of knowledge and/or experience of this
method. There is evidence of this in section 3.5 where
a more extensive discussion of the lecturers' perceptions
of IL and the lecture is presented.

3.4 TEACHING METHODS IN RELATION TO THE DEVELOPMENT OF SPECIFIC
SKILLS AND ABILITIES: LECTURERS' PERSPECTIVES

3.4.1 Introduction
The second aim of the pilot project was to explore what learning
skills and abilities the lecturers thought were important for students
to develop and the teaching methods they perceived as being appropriate
for developing these methods. For this purpose a form of Repertory
grid item was included in the questionnaire (Q1.TALUM, Appendix A1,
question no. 11) in which a set of teaching methods were presented
as elements. The lecturers were requested to identify learning skills
and abilities which could best be developed by these methods. The secondary aim of including a Repertory grid item (section 3.4.2) in the questionnaire was also to explore the usefulness of using the Repertory grid for obtaining data via the matrix which, if carefully and correctly used, can help the researcher to delve into some understanding of any individual's ideas (Pope, 1981).

4.3.2 The Analysis of Data

The matrix as it was used in the questionnaire was by no means an ideal form of Repertory grid (Kelly, 1955; Pope, 1980). The elements and constructs were not derived from a process of negotiation between the respondent and the investigator which Pope (1981) suggests is desirable. The elements presented in the questionnaire were provided and were non mutual so that not all respondents completed the matrix. The lecturers were asked to rank, but this ranking was not done completely. The elements or teaching methods were more representative of teaching methods in the Faculty of Education. Consequently, only those grids completed by eight staff members of the Faculty of Education were analysed. Furthermore, the construct elicitation process should ideally be done by an interactive process between the respondents and the investigator (Pope, 1981). Chapter 11, p.11:6 demonstrates a more appropriate use of a Repertory grid. Despite these limitations the exercise was useful as it provided me with the experience of using Repertory grid as a research tool and, more importantly, to assess its value for my subsequent main study.

Apart from the eight grids of the lecturers in FEUM which were analysed using the FOCUS and SOCIOGRIDS computer program (Shaw and Thomas, 1978), the rest of the data from the incomplete grids were analysed descriptively and the results presented in Table 3.7, Appendix A6.

3.4.3 Summary of Results and Discussions

By repeatedly examining the skills and abilities identified by the lecturers, certain categories evolved which I have classified in terms of Bloom's 'Taxonomy' (1956) and Krathwohl et al (1964). Table 3.7, Appendix A6, lists out the skills and abilities which the lecturers have identified as important and the teaching methods which
were perceived to be suitable for developing these. For convenience, four main areas were identified: skills in the cognitive domain; communication skills; abilities related to the affective domain; and study skills. The relative relationships that exist between each of these domains was, of course, recognised and noted. The results which again are tentative, are summarised below.

1. Development of skills in the cognitive domain

(a) The lecturers were most concerned with developing analytical skills as seen from the greater number of responses in this domain (Appendix A6). Examples of these were 'ability to reason', 'to make inferences', 'to cope with the logic of an argument'. The tutorial was highly ranked most frequently in terms of being suitable for developing analytical skills, the seminar received the next highest rank and IL the third. The lecture was perceived to be 'unsuitable' by the majority of the respondents.

(b) Perhaps the next important skill in the cognitive domain to be identified was application eg 'ability to apply', 'extrapolate'. For these the tutorials and seminars and also laboratory teaching were perceived to be more suitable. IL and micro teaching received the same ranking. Again the lecture was perceived to be unsuitable.

(c) For knowledge acquisition the lecture and tutorials were considered most suitable by a greater number of the respondents. Similarly, seminars and IL were also thought to be suitable.

(d) For skill in synthesis (eg ability to integrate knowledge), again the tutorials and seminars were considered as being suitable.

(e) It is interesting that only one respondent felt that evaluation is an important skill, and he/she indicated that all the methods are suitable for this purpose.

Other methods like assignments and group work were also added to the list by the lecturers. Assignments were thought to have value for analysis and synthesis, while group work was seen to be suitable for comprehension.
2. Development of communication skills

In Table 3.7, Appendix A6, communication skill was regarded as the next most important skill besides analytical skill. This skill covers the development of both written and verbal communication eg accuracy in writing and fluency in speech. The tutorials and seminar again were placed highest among the methods best suited for developing these.

3. Development of study method skills

In terms of study method such skills and characteristics as the ability 'to extract information from sources, hardworking, self-reliance, self-management and self-study' dominated the lecturers' responses. The three most highly and frequently ranked methods were IL, tutorials and seminar.

4. Development of skills in the affective domain

A number of abstract affective traits were identified such as initiative, intuition, patience, eagerness, curiosity, appreciation, ingenuity and motivation. These are psychological concepts which are attributes that all teachers wish to develop in their students. They cannot be divorced from the development of other cognitive, communication and study method skills. Suffice it to indicate that imagination, originality and creativity were the most frequently identified affective traits and the methods perceived to be most suitable for the development of these traits, are the tutorial method and the seminar.

3.4.4 Results from Repertory Grid Analysis

Section 3.4.2 described the process of analysing the data from Repertory grids. Perhaps just a few more words would be useful here to suggest that the eight grids completed by the staff of FEUM, represent the grids of a group of individuals who possess the widest knowledge and experience of a range of teaching methods or elements under study. They are, therefore, in the position to construe the elements as relevant. Each of the lecturers has, however, been free to provide his/her personal constructs.
Using the SOCIOGRIDS technique, the most commonly used constructs by all the eight members of the group is extracted and FOCUSed to produce a 'mode' grid which exhibits the content of the shared construing in the group. Each construct in the mode grid has been obtained from an individual in the group and is in no way changed when used in the mode. This grid then is not a consensus grid which averages out the individualities, but is strongly weighted towards the commonality of construing within the grid. Owing to this, the constructs tend to be highly clustered in a mode grid, and, generally, these clusters display a high degree of both literal and conceptual similarity in the construct labels (Pope and Shaw, 1979).

Fig. 3.1 illustrates a mode grid from the group of eight FEUM lecturers who assessed the implications of the teaching methods or elements on developing student learning skills. The latter form their constructs. Also in Fig. 3.1 one set of constructs is clustering around highly specialised skills related to physical education. These are atypical constructs from the grid of one person (G6).

The other concerns of the lecturers were in developing cognitive skills as demonstrated by the clustering of constructs around constructs 4, 3, 2, 1, 5 and 13 which represent skills which are related to critical thinking, presentation of well based facts and arguments, reasoning and problem solving, and organising information. Concerns over communication skills are demonstrated by the linking of C14 and C12 at node 27. The acquisition of knowledge and information is also regarded as important but features quite low in the construct tree.

In terms of the usefulness of teaching methods for developing the specific skills identified, the tutorial is seen as completely suitable for most of the constructs except for the acquisition of knowledge. Seminars and IL are perceived as being quite alike and are rated between 'completely suitable' and 'suitable' for all the constructs. In fact they are rated most suitable for the development of higher cognitive skills. Workshop, micro teaching and laboratory teaching are seen to be similar and are rated quite useful. The lecture enters the element tree on its own. It is perceived as useful for developing the theoretical aspects of specialised skills in
Proper game sport  G6C6  11
Minor games  G6C4  9
Advanced skills in sport  G6C2  7
Basic skills in sports & games  G6C1  6
Patterns of play strategies  G6C3  8
Rules of sport  G6C5  10
Critical thinking  G3C3  4
Skill in presenting well based facts or arguments  G6C1  3
Speech communication  G7C3  2
Organising information  G3C2  1
Thinking  G4C1  5
Reasoning & problem solving  G7C1  13
Formal oral communication  G7C2  14
Skill in writing critical & balanced assignment paper  G6C7  12
Knowledge or information  G6C3  15

NOTE: Rating corresponds
4 = completely suitable
3 = suitable
2 = unsuitable
1 = completely unsuitable

Fig. 3.1  A FOCUSed Mode Grid Of Eight Lecturers Of FEUM
physical education but 'unsuitable' for developing higher cognitive skills or even for knowledge acquisition which is quite surprising. In fact, interestingly IL was perceived as more suitable for the acquisition of knowledge or information rather than the lectures.

Not much information can be inferred from this analysis because of the limitations I have mentioned. However, I have found that the Repertory grid technique is a sensitive research technique which has potential.

3.5 LECTURERS' PERCEPTIONS OF IL AND THE LECTURE

3.5.1 The Need to Supplement the Lecture

In section 3.3.2(d) I stated that the lecturers may not have conceptualised IL as self-paced learning from printed materials in which are incorporated activities, self-test and assignments. From the responses, Table 3.5 p. 3:9 it was also inferred that the lecturers may have a lack and/or experience of IL.

It has also been established that the majority of the lecturers have a knowledge and experience of lecturing. In QI-TALUM, the lecturers were also asked whether they thought it was necessary to supplement the lecture and to suggest teaching methods which can supplement the lecture. Briefly, about 80% (Table 3.5 p. 3:9) of the lecturers felt that there was a need to supplement the lecture. Of the methods that received the highest ranking (Table 3.8, Appendix A7) were the tutorials followed by the seminars. The usefulness of specific methods for supplementing the lecture is unique to the needs of each faculty, each department and even each course eg in Science, laboratory work and in the Medical Faculty, clinical work were seen to be more useful than other methods. IL was ranked relatively high in the Medical/Dental and the Arts faculties.

Clearly different faculties and courses have different teaching requirements so that the teaching methods used may be different. The implications of this is for research investigation to be carried out at faculty levels if the results are to be meaningful. It is
pertinent, however, that across almost all faculties the tutorial, seminar and IL have been seen to be useful teaching methods for supplementing the lecture. IL, however, was not placed or ranked as high as tutorials and seminars, but a relatively high proportion of the lecturers (Table 3.5 p. 3.9) thought that IL would be a viable method to supplement the lecture method. One lecturer, in fact, suggested that IL should 'replace' the traditional method. Except for the Faculty of Education, the proportion of responses of the other Faculties in relation to its viability aspect, can be said to be middling but when compared to the negative responses, the figures may be considered to be quite significant, eg although only 56.6% (in Table 3.5 p. 3:9) of the lecturers in the Arts Faculty thought that the method would be viable, the proportion of the lecturers who indicated a negative response was only 11.1% in this Faculty. 33.3% of the lecturers in the Arts Faculty indicated that they did not know enough about IL to comment on it.

3.5.2 Lecturers' Views about Individualised Learning

Further insight into the lecturers' conceptions and perceptions of IL can be made by examining their open responses presented below (76.2% of the lecturers provided opinions). The lecturers' reactions to IL varies between total rejection to complete acceptance by those who have had some experience using IL of one form or another. The following quotes illustrate this.

One who totally rejects IL:

073: "Our students are the best ones selected out from all of the secondary schools. So there is not much diversity in the calibre of the student population. Hence this mode of teaching is not useful for our country."

Those who accept IL completely:

009: "We have actually carried this out every year when we teach students to use the electronic calculators supplied by the dept. A programmed text is prepared. Students work through the text and check their own answers. Faculty staff stand by for queries."
1. I have worked in Univ. departments where individualised teaching has formed an important segment of undergraduate teaching.

2. In many cases lectures are farcical with students distributing photocopies of notes etc."

Other reactions may be either positive or negative towards IL. The lecturers who hold positive views about IL perceived its potential for remedial purposes and for weaker students, or they viewed its suitability in terms of their faculty or departmental needs. Others related it to improving students' study methods and habits. IL was seen as allowing students time to think and discuss with fellow students, and also inculcate self-discipline and promote their integrative power. Illustrations of these are exemplified in the following quotes.

For remedial purposes and for weaker, slow or mature students

009: "Would like to see individualised instruction used to augment classroom teaching. Particularly as remedial or extra exposure for weak students."

032: "This method is very useful especially to those weaker students."

011: "It allows for the slow learner to receive extra assistance at his own rate of learning. Similarly, it allows the seeker of deeper knowledge to do extra work/study. Reinforcement and recall will be increased."

010: "1. This is one mode of learning - teaching experience which caters for different levels of capability of a group of students.

2. Some students, especially mature students find this method appropriate because it permits them to learn at their own pace."

For Faculty or Departmental needs

004: "In the present context of the Faculty of Engineering I think there is great scope for this method. You may not know it, but the Faculty of Engineering has almost two groups of students - one extremely good academically, the other of average ability. In such situations individualised instruction for the weaker students would be a great advantage."
"In language teaching the lecture method is neither efficient nor generally used - Individual instruction has been established as one of the methods that should be incorporated into a language acquisition package."

"Language course is highly individualised, thus a need for knowing individual growth and make them learn how to learn."

"I am of the opinion that some aspects of the foundation course like Psychology and Pedagogy at Dip.Ed. level and the compulsory courses at M.Ed. level can be programmed and used as resource materials in individualised instruction."

"Yes, if Faculty permits Reading course at Undergraduate level. At present not possible. It would be a good idea though - out of 10 units one should be a Reading course/ind. instruction to enable student to learn to read and incorporate reading along a certain theme/problem."

"A necessary method in psychology generally in biology; practical work by means of laboratory schedules or other means of instruction enables students to see, observe, feel, dissect, etc. specimens; conduct experiments, understand methods, obtain first hand experiences. As students largely work independently at their own pace the teacher with the help of demonstrators/tutors is able to have direct contact with needy students."

For improving student learning: inculcation of good study methods and promote integrative power

"In order to provide a 'sound' education to the students. At present I feel there is little or hardly any contact between lecturers and students."

"Development of rational and integrative power."

"It takes over where lectures and tutorials have their limits. It gives an opportunity for all the students to express, explore and endeavour a standardised preplanned work."

"This method gives the student ample time to think and possibly discuss the materials with their fellow friends. Furthermore, the student's work can be checked regularly and they are keeping up with their work."
O45: "Otherwise I would still support it because it would encourage self-study and independence of research efforts."

Some of the lecturers felt that IL was not viable because of the large number of students, shortage of books and teachers, and some felt that it would be impractical to prepare complete texts a task which would be just like that of writing a new book. Others put the onus on the students themselves implying that Malaysian students are used to 'spoonfeeding' and being disciplined, so that they therefore cannot adapt to IL. The quotations below serve to illustrate the feelings that IL is not viable because of:

Large student numbers, shortage of teachers and printed materials

O26: "Mainly since each lecture consists of approx. four-hundred students and there is little hope in the light of staffing conditions for this to be a viable proposition."

O27: "When you have a large number of students, it is impossible to give individualised instruction."

O33: "To prepare a complete text is not practical as it is almost like writing a new book."

O41: "Insufficient time to write out such programme."

O35: "Requires more staff to give individual instruction..."

O65: "1. Insufficient staff."

Lastly, for some, IL was seen not to be viable because the lecturers appear to misconstrue or misconceptualise IL. From their quotations they appear to suggest that IL entails no contact with the lecturer; that it is workable only with small numbers of students; that the onus is on the students themselves to cope with the course; that IL sets no time limits and no standards for achievements. The doubts expressed do suggest that there is insufficient awareness of advancement in educational technology and the implications of IL on student learning in particular. The implications of this on future research is obvious. Here are some quotations to illustrate the above points.
Misconceptualisation of IL

071: "Difficult to keep track of students working at different paces, especially where practical work is concerned - problems with finding equipment and materials except for very small numbers of students at highest level."

(Here the lecturer assumes that IL necessarily entails extensive equipment and materials.)

076: "We use this in a way in 4th year student research projects. Only workable with low numbers which is often not the case. Depending on the total number of students in a course."

(It is not clear how he conceptualises IL in this context.)

060: "The courses I teach does not make individualised instruction a viable teaching method because student-teacher and student-student interaction is vital if anything meaningful is to be obtained from the courses."

(This lecturer assumes that there is no contact between students and teacher in an IL situation. The research findings, however, point to an increase in contact in IL than in courses run on conventional lines (Elton, 1977d).)

030: "By your definition it is like spoonfeeding."

081: "When students undertake to study a subject or course, they do so with the clear understanding that it is done out of their own free choice and not by compulsion, and that they are expected to cope with the course content within a specified time and not in any time they like. They must also be in a position to cope with the course, or they should not do the course at all. Individualised instruction implies no set time limits for the student, and no standards to be achieved within that time. It is therefore out of question as a practicable means of instruction."

(My own underlining)

It is interesting to note that some other lecturers felt that IL is viable because of a shortage of staff as this quote illustrates:

034: "Specially important where teachers are lacking."
Malaysian students are used to spoonfeeding:

O13: "Probably not in the University of Malaya at present - it would imply radical alterations in the present teaching system and workloads on the students. The students in UM are so used to being spoonfed and disciplined by authority that they lack the requisite self-discipline to make the method viable..."

(My own underlining)

O24: "Malaysian students find it hard to work on their own."

O71: "Our educational system (starting from the primary stages) has not been designed to train students by using this method. If it is introduced now in any of our universities, I am afraid our students will not be able to adapt to it."

It is worth comparing these responses to those stated earlier on p.3.24 which suggest that IL can inculcate positive study methods and habits. The attitudes and capabilities of Malaysian students appear to be the issue in these contexts, and I feel that the students' dispositions are directly related to the lecturers' conceptions or labelling of the students. Also there may be a hint that it is the education system and not the people who perpetuate the system that is the object of criticism here. It also appears that the lecturers' conception of IL is also related to their conception of conventional teaching methods as the following quotation demonstrates:

O16: "Tutorials are more suitable for development of rational and integrative power."

The tutorials are seen to be theoretically useful for developing integrative power, but the findings so far seem to point to the inadequacy of the tutorials in terms of organisation and student numbers which do not allow for fruitful and meaningful contact of students with lecturers. The general feeling towards traditional methods of teaching have not been too encouraging. Students in Phillips' (1977) study have found the tutorials 'farical', and some of the lecturers in this survey have also expressed their feelings of the lecture thus:

O69: "The traditional teaching methods tend to make the students do 'last-minute study'."
002: "In my opinion, the lecture should be banned as a regular medium of instruction. Occasionally it may be useful."

005: "2. In many cases lectures are farcical with students distributing photocopies of notes etc."

025: "Attending a lecture requires no mental effort on the part of a student - hence minimal learning experience. This is the converse of individualised tuition."

059: "At present I feel there is little or hardly any contact between lecturers and students."

Clearly, the lecturers' feelings towards IL are influenced by their conception of what IL entails and how it may fit into the present structure of their own departmental or faculty organisation, their students' needs and capabilities. Those who have cynical views about the potential of Malaysian students and their capacity for independent study and view the education system as not conducive for IL, perceived IL as non-viable. There were also others whose reactions were more cautious only because they misconceptualised the meaning and implications of IL.

3.6 CONCLUSION

1. The construction and use of one questionnaire to tap the information of teaching practices in different faculties was somewhat inadequate because of the possible differences of the teaching orientations of different faculties and departments, and even different courses within the departments. This has implications for future research. Nonetheless, three teaching methods: the lecture, tutorial and seminar are the most commonly used teaching methods across all faculties. Any conclusions derived about these can, therefore, quite reflect the teaching situation in the faculties being studied.

2. There appears to be some mismatch between what were perceived by the lecturers to be important learning skills and abilities, and the definitions attributed to teaching methods such as the
tutorial and seminar. The most important skills which were identified relate to analytical, communication and study skills in that order, but it would seem that generally the focus of attention in the tutorial and seminar as the definitions imply, was on subject matter. The evidence is not conclusive so that more systematic research is needed in this direction.

My own feeling is that several factors conspire to make learning by the tutorial and seminar less effective than they ought to be, and for lecturers to fight shy of newer techniques:

(a) the onus is put on students themselves to create an effective tutorial session. They have been criticised of "expecting a mini lecture" at the tutorial and turning it into one. Or, on the other hand Malaysian students are thought to be incapable of independent learning;

(b) with large classes and a shortage of staff, personal contact and attention given to students in small groups or on an individual basis is seen to be limited and difficult;

(c) there is evidence of the lack of knowledge and experience of most staff members of a variety of teaching methods. Generally, all lecturers have had experience in teaching via the lectures, tutorials and the seminars in their student days. The implication clearly is for new untrained and inexperienced lecturers to have a greater degree of exposure to new innovative teaching methods;

(d) there is a lack of research into teaching and learning and this is something which could be useful to all lecturers.

3. The findings suggest that IL is relatively unknown in the Malaysian context. It is pertinent that a relatively high proportion of the lecturers perceived its applicability and viability in the Malaysian classrooms. The implications for future studies are, therefore, quite apparent.
CHAPTER 4   STUDENTS' EVALUATION OF IL METHOD AND MATERIALS AND LECTURERS' EVALUATION OF IL MATERIALS

4.1 INTRODUCTION

In Chapter 1 p. 1:2, I stated that I had to devise my own ILM because there were no suitable materials which I could use with the intended groups of the FEUM students in the proposed study. Writing the materials for the study should, in fact, be sequential to the pilot project on teaching and learning in higher institutions in the University of Malaya (Chapter 3) but, on account of the time constraint within which I have to complete the thesis, and the distance between the UK and Malaysia where my research was grounded, it was not practicable to make frequent return journeys to Malaysia to carry out separate pieces of work. Consequently, working then on the assumption that IL might be viable within the Malaysian context, I constructed the ILM to be piloted at the same time as I was conducting the pilot survey (discussed in Chapter 3). I had to make a second assumption that I would be able to carry out the main research with teacher trainees at the Faculty of Education, University of Malaya. At the same time I was concerned that this might not be feasible. In anticipation of this happening, I chose an area or subject content which I felt not only lent itself to the IL format (see Elton, 1979c quoted on p.44), but which would have wider application in a diploma course at the university level as well as a certificate course in education at college level. Chapter 5 discusses the reasons for a change in the research context from the FEUM to STTI and the FEUM.
I also pointed out in Chapter 1 p. 1:3 that it was important for the main study to also investigate the perceptions of students to the ILM per se. This is to establish the extent to which their reactions to IL as a method of teaching were affected by their perceptions of the ILM. However, as the ILM is not the critical issue in this study, its investigation is therefore only peripheral and not detailed. This aspect is discussed in section 4.4.

The purpose of piloting the materials was to carry out a formative evaluation of the prepared learning materials in terms of their content validity, the suitability of the format and of the language facility. Formative evaluation is here used in Nathenson and Henderson's (1980) terms of reference is "formative evaluation' refers to a collective term to describe all the processes involved in improving learning materials". (See also Nathenson and Henderson (1980) quoted on p. 4:5 of this chapter.)

A secondary but important aim of piloting the ILM is also to expose a small group of students to IL as a method of teaching in a teaching and learning situation which is as close as possible to reality, and then to monitor their perceptions and attitude to the method by interviewing them.

By piloting both the ILM and the method it was hoped that certain issues and problems would emerge from the process of carrying out the pilot study, which would be useful to consider when revising the materials and planning the main research.

The contents of this chapter are as follows:

4.2 Part I: The rationale for the content selection of the ILM
   A description of the content of the ILM
   The procedure and process of constructing the ILM
   Evaluation of the original ILM by lecturers and students

4.3 Part II: Students' evaluation of IL as a teaching method

4.4 Part III: Monitoring the ILM in the main study by students and lecturers.
4.2 PART I: RATIONALE FOR CONTENT OF THE ILM: THE PROCEDURE AND PROCESS OF CONSTRUCTING THE ILM AND THEIR EVALUATION

4.2.1 Rationale for the Content Selection

The subject which I selected was OBJECTIVES AND ASSESSMENT IN THE CLASSROOM, two important aspects in a teaching and learning process. In my Introduction I have mentioned that this subject is taught in the university DipEd course as well as in Cert.Ed at the teacher training colleges. My own view is that in the conduct of classroom teaching, all teachers should be guided by a set of aims and objectives which must then be assessed. I am not, however, advocating a pure behaviouristic approach to teaching, but I am concerned that teachers should have a clear understanding and conceptualisation of whatever objectives they may formulate in their teaching, and the process by which they assess their students on the basis of these objectives.

From my experience of teaching at the FEUM, the importance of these two content areas has been somewhat understressed. Only three to four hours of lecture time is devoted to these areas and only about three to four tutorials to the practice of writing objectives. Quite often aspects of classroom assessment are rapidly glossed over and their teaching is not related to the teaching of objectives. I feel Objectives and Assessment in Pedagogy constitute two units of one component and the one should be taught in relation to the other. However, this does not usually happen in practice at the teacher training level (in STTI it has also been the practice to teach Objectives separately from Assessment), nor was there evidence in practice teaching in schools that student teachers were demonstrating an understanding of the concept of objectives, of writing objectives, and relating these to the construction of examination questions. Generally, student teachers demonstrated a high degree of arbitrariness in formulating their objectives and devising their assessment in terms of examination questions. I would conjecture that this may be due to certain limitations inherent in the present structure and/or teaching method used in the FEUM, which does not allow students sufficient time to assimilate some basic knowledge of Objectives and Assessment, and to extend it to practical issues in order to develop the desirable competencies in their classroom practice.
Experience has led me to realise how difficult and time consuming it is to instruct students on Bloom's (1956) concepts of the three domains. A two or three hour lecture on Objectives can only gloss over important concepts leaving students bewildered at the end. Besides, the subject requires adequate application of the theory into practice. In the present set up there is too much theorising with little practical application.

It may be conceded that within a one-year structure like the Diploma of Education, it may not be possible to invest too much time on a relatively small but important aspect of Pedagogy. This may, in fact, be a reason to suggest that IL packages which incorporate activities, assignments and self-tests would be useful to inform students of basic contents so that the lecture time can be better utilised by lecturers to provide more urgent help to clarify only difficult concepts, and to help students to apply the theoretical knowledge. Furthermore, the subject area also lends itself to the IL format. Elton (1979c) emphasises that the Keller Plan or IL in this case is good at teaching concepts and principles, although it does not readily provide drill practice. The drill practice may be provided by more student activities at tutorial times.

4.2.2 A Description of the Content of the ILM: Before and After Revisions

Fig. 4.1 represents the original sequence and format of the ILM which underwent a series of evaluation, revisions and re-evaluation to produce a set of materials (Fig. 4.2) which were finally used in the main study. Some points are footnoted to describe some of the major modifications in the contents and their presentation. The subsequent sections 4.2.3 and 4.2.4 describe the process that led up to these modifications.

4.2.3 The Procedure and Process of Constructing the ILM

4.2.3.1 Procedure

Subjects who piloted the ILM

Students - six students of the course in Bachelor of Science with Education (BScEd) at the University of Malaya in Kuala Lumpur, volunteered to pilot the IL materials for a fee.
Unit 1: Objectives in the Classroom: Aims and Objectives

Unit 2: Objectives in the Classroom: Identifying & Applying 3 Criteria for Stating Specific Behavioural Objectives

Unit 3: Objectives:Writing Objectives in the 3 Domains

Unit 4: Assessment in the Classroom: Functions of Assessment

Unit 5: Assessment in the Classroom: Table of Specifications

Unit 6: Assessment in the Classroom: Validity & Reliability

Unit 7A: Assessment in the Classroom: Objective Test Questions I
Unit 7B: Assessment in the Classroom: Objective Test Questions II

Unit 8: Assessment in the Classroom: Essay Test Questions

Unit 9: Assessment in the Classroom: Handling Test Scores
Unit 10: Assessment in the Classroom: What Makes a Good Test?

Module A1 Objectives in the Classroom: Aims & Objectives I
Module A2 Objectives in the Classroom: Aims & Objectives II

Module B1 Objectives in the Classroom: Criteria for Stating Specific Objectives I
Module B2 Objectives in the Classroom: Criteria for Stating Specific Objectives II

Module C1 Objectives in the Classroom: Writing Objectives in the 3 Domains I
Module C2 Objectives in the Classroom: Writing Objectives in the 3 Domains II

Module D1 Assessment in the Classroom: Norm Referenced & Criterion Referenced Assessment
Module D2 Assessment in the Classroom: Summative & Formative Assessment

Module E Assessment in the Classroom: Table of Specifications

Module F1 Assessment in the Classroom: Objective Test Questions (Multiple Choice Questions)
Module F2 Assessment in the Classroom: Objective Test Questions (Matching, True-False Items)

Module G1 Assessment in the Classroom: Short Answer Questions
Module G2 Assessment in the Classroom: Nature of Essay Questions
Module G3 Assessment in the Classroom: Setting & Marking Essay Questions

Notes: 1. Where there were originally 10 longer units, now there were 13 shorter units with more examples added & illustrations included.
2. The original Unit 6 was dropped & the subject instead was presented in 2 lectures in the main study.
3. Units 9 & 10 in the original units were also dropped. These were handled by the normal teachers at STII.

Fig. 4.1 Original Sequence And Content Of ILM (as piloted)

Fig. 4.2 The Final Sequence & Content Of The ILM (as used in the main study)
There were four girls and two boys. They were of different races. I could not pilot the materials with the Diploma of Education (DipEd) students, because they were away on teaching practice. Consequently, the BScEd students were not representative of the target population, but represented a group of students who were also education students. Furthermore, both groups of students were studying aspects of Objectives and Assessment for the first time. Nathenson and Henderson (1980) indicate on pp. 30-31 of their book that formative evaluation may be collected "from experts and/or students (singly or in groups of various sizes), not necessarily typical of target population by the developer or evaluator or developer and evaluator together".

The six students and I met two hours a week for a period of five weeks. During the course of these meetings only one student missed two sessions on account of illness. I was informed of this absence and her friend collected the relevant units for her to do at home. Two of the meetings were cancelled because of a public holiday and my own indisposition. Again on these two occasions the students took their units home. I found on these occasions when the students had to work independently through their materials at their own pace and place, that some advantages could be gained. This was the kind of situation which would happen if IL was implemented and practised.

The students had a lot of flexibility in the mode of work. Except for unit 'O' on 'Students' guide to using IL' (this was evaluated within the two hour period), the students had flexibility in completing the units to suit their own pace. However, although they were self-paced, they were also teacher-paced in the sense that they were required to complete two units within a week. Hence, most of the time some students worked through parts of the materials in my presence, while others completed them at home and used the two hour period as an opportunity to interact with their peers to discuss aspects which they found unclear, or to consult me for clarifying points which they had not understood.
The students were directed on how to evaluate the materials. There were two methods of evaluating the materials that they were to use. For every alternate unit, each student was asked to respond to coloured questionnaires (Appendix B1) which were interleaved within the units. These questionnaires were adapted from those used by the Open University, Nathenson and Henderson (1980). In the units, where there were no questionnaires interleaved, the students were asked to write their comments directly on to the text. We agreed on some symbols that they could use and that if they used their own symbols they were to provide the key to those symbols. The rationale for allowing them to alternate the types of evaluation was to avoid tedium. The students might find it tedious and boring to fill in the questionnaires at every stage in the instructional materials. It was also intended to find out how effective each method of evaluation was for getting a feedback from students. Evaluation of the materials was further obtained from a half hour interview with every individual student. All six students were interviewed on one day at the end of the last unit.

Teachers - each of the eight teachers, who agreed to evaluate the materials, were given a set of the teaching materials which were to be evaluated for their suitability in terms of the content and coverage, the language facility, and the format generally. Of these eight teachers, two were lecturers in teacher training colleges.

Although the aim was to acquire a detailed feedback of the ILM from lecturers at the Faculty of Education, this was not entirely possible because the lecturers were then busy with teaching practice supervision and with other academic commitments. I was able only able to approach and request six lecturers in the FEUM to look over the modules and, preferably, to respond to the relevant parts in the questionnaires interleaved. Of the six who were each given a set of the IL materials, four returned them with some comments, but these were too general to be of much significance. The comments made by one colleague, however, provided reasonably useful
feedback and so were the comments made by the two lecturers from two teacher training colleges.

The lecturers' and students' evaluation of ILM, together with their suggestions, is discussed in 4.2.4.

4.2.3.2 Process

The process of evaluating the ILM went through two cycles (Fig. 4.3 overleaf)

Cycle 1: As soon as one unit of the materials was completed, it was evaluated by an expert (a) who not only had knowledge of the subject of the ILM, but was also an authority on Keller Plan and has pioneered teaching using the Keller Plan at the University of Surrey. The materials were then revised and typed carefully. The next stage of the evaluation was with students and lecturers at the FEUM (b).

Cycle 2: On the basis of their comments, the materials were revised and improved a second time (c) and again re-evaluated in the UK (d). At this stage after the ILM were revised again (e) and carefully typed, they were piloted with three students who were representative of the target population from STTI and one lecturer. (Please see Chapter 5 p. 5.3 for the reasons for change in the research context.) This necessarily had to be done by mail through the help of a lecturer who also participated in the study. Any minor revision or corrections on the basis of this latter evaluation, was made later at the implementation stage of the main study. This was unavoidable because of the time constraint. I had to finalise the master copies of the ILM in readiness for the main study (the printing work of which was done in Kuala Lumpur). As a result it was not possible to revise the materials a fourth time before they went into print. A few errors were detected, some of which were identified and pointed out to the lecturers who used the materials.

I shall now confine the subsequent discussions only to the first cycle of the evaluation process which resulted in much of the revision that was made.
Fig. 4.3 Process Of Evaluating IL Materials

Note: 1st cycle
      2nd cycle
4.2.4 Reporting the Lecturers' and Students' Evaluation of the ILM at the Pilot Stage

4.2.4.1 Introduction

The ILM were piloted with students and lecturers to evaluate their suitability in terms of their 'features', general format, and language difficulty. The term 'features' was used to denote the various aspects which characterise each original learning unit such as the following:

(a) subject matter or content (expository sections),
(b) overview (found only in Units 1 to 3),
(c) objectives,
(d) activities,
(e) key answers,
(f) assignments,
(g) progress chart,
(h) the general format of the study guide.

The students' evaluation of each of the above features is discussed in 4.2.4.3. As the lecturers' evaluation was rather limited, it will be discussed briefly in the next section.

4.2.4.2 Lecturers' evaluation

Much of the evaluation was given by a lecturer at the FEUM and by two lecturers at two teacher training colleges. Their evaluation emphasised more the content because it was not possible for students to provide much comment on the content. For this I relied more on the feedback given by the lecturers, and the syllabus. The most pertinent comments made by a lecturer at the FEUM relate to the following aspects.

(a) The content: he felt that the units covered too much ground in the quantitative aspects.
(b) Examples: some of the units required more examples.
(c) Placement of the answers: he felt that it would be better to place the answers at the end of the units.
(d) Progress chart: (Appendix B2) He saw little advantage in this for the students' self-evaluation.
Other than these, he noted some mistakes with the paging. He commented that the general format was suitable and indicated that the language was easy enough.

The two lecturers from the teacher training colleges felt that the units covered most of the aspects which they themselves dealt with in their course on objectives and assessment. Other than detecting some errors in some of the units, they considered the ILM appropriate to be used with their colleges. One of them with whom I had the opportunity to chat with at length, was of the opinion that she liked some of the units more than the others. She particularly liked Units 1 and 2 on 'Objectives' and the ones on 'Constructing Examination Questions'. She was, however, unhappy about the units on the quantitative aspects of assessment suggesting that they were too detailed.

4.2.4.3 Students' evaluation of the ILM

The students' evaluation of the subject matter could be seen from the comments which they made on the materials themselves and from the transcriptions of their interviews. Generally, their responses to aspects or features of the unit invariably reflect their attitude towards the specific features of the learning materials. One could not, therefore, strictly separate the students' evaluation of each feature in terms of its clarity, adequacy and suitability, without also inferring that they were expressing a positive or negative attitude towards that feature. For example, if the students indicated that the overview was clear and useful, one could also assume that they held a positive attitude towards that feature (overview) and, as such, one can make the inference that including an overview in the learning materials, is a feature that could be retained. The converse may also be true, for example the fact that the students were unanimously averse to the Progress Chart (Appendix B2) could be an indication that this is a feature that should be omitted from the ILM. Consequently, in analysing the transcriptions of the interviews and the data from the questionnaire no attempt was made to demarcate between the students' evaluation of the ILM per se, and their attitude towards the specific features in the ILM.
The students' evaluation of the different features in the ILM was as follows:

(a) **Subject matter**

The students found the first three units on Objectives 'factual' and 'theoretical'. One student in particular found Unit 3 on the Taxonomy of Educational Objectives, difficult to grasp because the 'examples given were limited'. They were unanimous, however, in thinking that the units which dealt with the 'construction and marking of tests' were 'very interesting' and 'useful'. Their reactions to the ILM in terms of its contents may be illustrated by the following quotation by Student 1:

> The first unit I felt so bored because I don't know completely. Then you showed me my mistake between specific and general objectives. Then I realised that I cannot think of 'specific' in the scientific term.

(T)

Student 1 indicated that she worked intermittently and attempted the assignments and found that she could do them. She found the units on norm-referenced and criterion-referenced testing quite easy. From then on, she said, she did not find the materials boring.

The students' comments about the first three modules seem to suggest that some of the students found them difficult because the subject was theoretical in nature and was new to them. One of them could not see the sense in writing objectives. However, there was indication that the activities that were incorporated have helped them to understand the theory better. I feel that as the units lack illustrations they did not appeal to them.
All the students expressed more interest in the subsequent units on Assessment because they were familiar with tests and examinations. They regarded learning to construct and mark examination questions as useful to their role as teachers.

Student 2: "I feel I like the setting of the questions - teaching us how to set exam questions, how to mark them. What are reliable and you know valid... I was looking forward to that part you know where you teach us... will be useful to us."

The students' evaluation of the materials was, however rather general. For a more meaningful evaluation of the content, I had to rely on the lecturers and the expert who evaluated the modules when they were first written.

(b) Overview

The overview is a form of advanced organisers (Ausubel, 1960), which is useful to provide students with a general framework of what to expect from each learning unit.

An overview was included only in the first three units. This was quite deliberate to find out how perceptive the students were towards the absence of an overview in the fourth and subsequent units, and if they were, to what extent they considered the overview helpful. Generally, all the six students felt that there ought to be an overview in every unit, but not everyone was perceptive enough and inclined to discuss with spontaneity the absence of such a feature from a unit. If it was anything to go by, the spontaneous comments of a student could be said to be a reflection of the general feelings that the students considered the overview relevant and helpful to include in each unit of the IL materials.
Student 3: "...the last units we don't have this what...overview.

I: Would you have liked to have an overview in every unit?

Student 3: Yes. I like to have overview because...
I was reading the objectives so many times (she stressed these words) I couldn't understand.

I: Which one?

Student 3: The units that doesn't have overview because err like the first unit you state overview that these are objectives.
When I read here (showing the sections) I can understand to distinguish between aims and objectives."

(c) Objectives

The students were very spontaneous in offering comments about the inclusion of the objectives in every unit, even when they were not questioned about it in the interview. Five of the students expressed that they found the objectives clear and relevant. Two students indicated with regret that they were not given a sense of direction in their normal lectures. They described the objectives as 'important', 'helpful' and 'give idea of what to expect' and 'what to emphasise on'. These feelings are illustrated by the following:

Student 4: "...objective I think it's very good you know something as you go through the thing you see where we have...for example you have objective you know where let's say you have to state two of the most important criteria of a good test that can gear us to know that specific area that we have to achieve...think it's a very good one...a good aspect of these teaching modules are objectives you produce...particularly learning these objectives area...the first three units talk so much about objectives suddenly you give me a very clear picture that how important...like in the lecture system you grasp here and there not knowing where you have to really particularly know to what extent you should know concerning a
topic. So what we do is we judge from the lecture we are given how deep that we should go."

Ironically, one student did not find studying about objectives relevant and yet expressed a positive attitude towards having objectives stated in each unit. She found the units on objectives very theoretical and she 'did not find anything in it useful...knowing the objectives in the classroom and anything like that.'

(d) Activities

On the whole the students expressed enjoying the activities:

Student 2: "I enjoy I like the activities also I think it's a crucial part of it you know, I mean without the activities you it'll be the whole thing like lecture in the sense that this information is given to you whereas the activities really helps us to think you know, really assess whether we understand...help us to test whether we have understood the content."

One of the students was of the opinion that more activities should be incorporated into the units which dealt with Constructing Objectives and Essay Questions. He felt that the activities for these two units did not adequately sample or test what had been explained in the explanatory sections. Two other students had this to say about the activities.

Student 5: "I like to do activities because I want to practise myself if not without activities you don't know whether you can handle it you know..."

(Student 4: "...really to learn how to write questions one of the features that I find interesting."

One student was helpfully critical about specific activities which she thought did not help her own understanding. These comments on the activities were in due course carefully examined when revising the materials.
(e) **Key Answers**

The students had mixed perceptions to this feature of the instructional materials. They were asked how they felt about getting the answers to the activities immediately. 50% of them thought that having the answers immediately after the questions was not advantageous because it encouraged them to look at these answers, a feeling shared by a lecturer at the FEUM. Some of the interesting comments which they made illustrate their feelings.

Student 4: "...it's bad...the answer is there what for to think so much."

Student 6: "Temptation at very beginning...so far overcome. Immediate feedback very good...you know exactly where you are weak where are your weak points where you don't know the text well which parts of the text that you don't know well then you immediately go back and then I think it will be very efficient you know the way of studying in this way."

I asked this student what she thought about the idea of putting all the answers to the very last. She replied:

"No I don't think it's advisable because if we cramp all the things together at the end we tend to mix up and then forget because we tend to mix up you know..."

One student felt that the answers should not at all be incorporated in the same booklet and suggested that they be given at a later time.

(f) **Assignments**

The assignments (whenever one was inserted in a unit) were thought to be useful by most of them and even 'exciting' by one of the students. I asked the students which of the aspects or features of the learning materials that they found most interesting, one of them said:
Student 6: "...well doing the assignment and then the lecturer comes and says 'oh you got it right'...you really feel satisfied with yourself at least sort of you have achieved something you know...after all the hard work and all that I mean it's very how to say err very exciting."

Student 5: "When I can do the assignment well I feel pleased."

One student was unsure of her feelings:

Student 2: "Assignments? OK also I think we are not used to do assignments, that's why... I think it will be very helpful and the assignments are geared towards helping us to gain better insight into what we are supposed to know and very practically so. I think it is very useful."

(g) Progress Chart (Appendix B 2)

Five students were unanimous in their comments about the progress chart. They did not like assessing themselves because some of the assessment involved a subjective assessment. Neither did they like being assessed by their partner or to assess their partners. These feelings concurred with a lecturer's feeling that the progress chart was purposeless. They had described the assessment exercise as 'tedious' and 'redundant', the rating scale as 'dull' and they expressed that this was a feature that was least interesting. Some of the comments reflected their attitude towards the inclusion of the Progress Chart.

Student 4: "It's difficult to assess my own work or with friends, we do not like to admit it...prefer to discuss only."

Student 6: "Tend to underestimate myself or overestimate."

Student 5: "I don't like the progress chart...very general."

Student 2: "Doing activities themselves is a process of assessing have idea of what we are not sure of."
One student thought it was helpful if done diligently but not all the assessment could be marked objectively.

(h) General format of the Study Guide

Not many comments were made that related to the presentation. Some have remarked that the materials were reasonably well structured and written in a language that they could understand, except for a few words like 'panacea' and 'aesthetics'.

4.2.5 Summary and Discussions

1. A feedback on the IL materials was obtained by personal contact with the students who piloted the materials during the pilot sessions. Further information was also obtained from the questionnaire they filled in and from their written comments on the units. I find that the procedure of asking students to write their comments directly on to the texts has not proved to be a useful method. More information was obtained from the questionnaire though not substantially more. I found that I was able to elicit more comments from them through interviews and personal contact.

2. The content was generally found to be excessive with respect to the quantitative aspects. Some of the units lacked illustrations. Suggestions to increase the number of activities in Units 7 and 8 were also made. These were noted in the revision and improvement of the materials.

3. There was strong evidence to suggest that the Progress Chart in the form that I presented it was entirely unacceptable. This was later dropped from the ILM and was replaced with a self-test (Appendix B3b) which can be easily marked by the students themselves.

4. With regard to the placement of the key answers, I felt that placing them at the very end of the unit would not prevent the students from peeping at them. Instead, I felt leaving them
in their original format may encourage the students to cultivate a self-discipline. I also felt that it did not matter if the students did peep at the answers because this, in itself, would be a learning experience and an exercise at acquiring knowledge. Consequently, I retained the original format of the keyed answers, but I made sure that the answers were always on a fresh page.

An example of a revised module of the ILM in English and an example of a unit that has been translated into the Malay Language are laid out in Appendices F4 and B3a.

5. Finally there were problems and limitations encountered in the pilot study. I found that I had to rely on the goodwill of individual lecturers to scrutinise the materials and to respond to every relevant question in the questionnaire. Hence I have had to be content with whatever feedback that was forthcoming and rely more on the evaluation made by the students.

Another limitation is that the students had to work within unrealistic time constraints doing two units a week for five weeks, over and above their own workload when, in actual fact at STTI the time allocation was ten weeks of two hours a week. The strain they experienced is evident in the following:

Student 4: "... what I mean is the time ...since this... has been done out of my course so I find that time...putting ...into my schedule is quite packed...but in fact if it is part of a course err I find that it is very effective mean...very...get to know certain...very difficult to grasp concepts especially in this part of education. I find that somebody to explain through ...instruction guides...can be very easy to follow."

4.3 Part II: STUDENTS' EVALUATION OF IL AS A TEACHING METHOD - A PILOT STUDY.

4.3.1 Introduction

A secondary but important aim of piloting the ILM with the students was to explore the students' reactions to IL as a method of.
teaching. It may be assumed that if the students perceive the value of IL in terms of their learning, then it is a teaching method worth investigating.

At the end of piloting the ILM, the students were interviewed firstly to gain more depth into their perceptions of the ILM per se and secondly, to explore their attitude towards IL as a teaching method. This part of the chapter reports and discusses the students’ attitude and perceptions to IL as a teaching method.

4.3.2 Student Perception to IL as a Method of Teaching

4.3.2.1 Procedure for data collection and analysis

The six students were interviewed between 30 to 45 minutes in a semi-structured interview session which was, however, guided by the following questions:

- What teaching methods they were used to.
- What they felt about learning by IL.
- What they felt about lacking the face-to-face contact in lectures.
- What they felt about being able to self-pace their work.
- Whether IL helped them to learn more efficiently.
- Whether IL encouraged them to read further.
- What they thought about the time taken to study by IL as compared to learning by the lecture method.
- What they felt about working with a partner.
- Given the choice to study by IL and the lecture, which method they would prefer.

The interviews were tape recorded, transcribed verbatim and analysed qualitatively. The findings and discussions are presented as far as possible in the order of the questions.

4.3.2.2 Findings and discussions

(a) General feelings to IL

All six students indicated that their involvement in the pilot project in learning through IL materials was the first experience they had ever had. The normal
methods of teaching they were used to were the lectures, tutorials and laboratory work. I probed a little more into their attitude towards the lecture and the tutorial.

I: "What else (methods) have you been used to?

S2: For science we have practical lessons, lab work and tutorials.

I: Do you have small group tutorials?

S2: No, it is about 30 to 40.

I: Were you able to interact with the lecturer?

S2: I guess the opportunity is there but then most of us, I myself like myself don't really make use of it. There is so much to be done during the tutorials they give us some work. We have to finish that work. So it has nothing to do with our lectures. So far we have have only one lecturer who...not compulsory...but he has a tutorial class based on his previous lecture. It is not really beneficial because when you go there you must have questions in mind."

The student seems to suggest here that she found this kind of tutorial ineffective because she had not come to the tutorial prepared with questions to ask. She also had this to say when comparing the lecture with IL:

S2: "This is more fun I mean you let's say during lectures all of us are together but we do not have much interaction with one another. We do not consult each other about the lecture and we do not ask the lecturers or even our fellow students about any problems we have or anything like that. We have just to read up on our own. But for this I think we sometimes have a partner, I mean and we discuss it with those taking the same subjects. I guess it is beneficial. We learn a lot...more fun."

Another Maths student also described his tutorial size with twenty in the group as quite large. He added:

S4: "...for our tutorials most of our solutions and answers have been provided so find that we we're a bit lazy."

It may be noted, however, that one of the interviewees felt that she could learn more from the lecture
considering the amount of time and effort that she had to spend on the IL materials. She said:

S3: "I think we spend more time if we are... err... if we have to do all on our own. At least at lectures you can see the lecturers their expressions if err we can go back and read we spend less time. We have err we have heard the words in the lecture and the lecturers have to explain or give certain expressions which you can remember. In this case if you read once you won't remember. Everything you have to read and reread before you can get the message."

Yet, towards the end of the interview when she was asked if she had other comments to make she said:

S3: "I have learned very much. I don't regret..."

Student 3's comments are important to suggest that so single method of teaching may be uniformly suited or unsuited to everyone. There may be a range of variables which can explain this phenomena. For example, her own personality ie her need to be able to hear and listen and see her teacher; her own study habit; her preference or otherwise of relying heavily on the written text. It could even be due to the learning materials themselves which may not have been clear and which may not have appealed to her, or it may be due to the total context of the learning situation. She was, after all, working under unrealistic conditions as I have indicated earlier.

There were other general feelings expressed which would be interesting to note. The following interviewee found IL interesting because it was 'new' and that she could work with friends, but she found that in terms of knowledge accumulation, she thought a one hour lecture would provide more information. However, she felt that she would benefit more in terms of retention because of her own involvement in the learning process such as 'doing it yourself' and the activities.
S4: "I would say it is interesting in the sense that it is new and...but based on how much knowledge we can get, I would say that one hour lecture would give a lot more than this because we are doing it. This I guess is good for retention in the sense that if you are doing it yourself you get all the ideas and we have to think about them ourselves - so you can retain it better, whereas in the lectures you have to go back and read sometimes you really don't understand...there is so much to read. You don't retain so much but I think knowledgewise, more information is given during lectures than during using this unit."

In retrospect and upon reading the transcripts, I thought she had made a very pertinent comment which is related to the concepts of knowledge and retention, but at this stage I had not probed further into these.

Student 1 felt uneasy about learning by himself and suggested that if left to himself he would probably not have done the work. A translation of his remarks illustrates his feelings:

Sl: Feel quite appropriate but I have my own opinion. (At which point I suggested that was exactly what I wanted to hear). Like this method, like me, I don't know really, but maybe I do this because I need to complete the thing not on my own initiative to do that thing... perhaps if left to me perhaps a lot I may not do...

This same student did not feel the adequacy of the lecture and the tutorial that he had been used to. He said:

Sl: There are tutorials but even in tutorials I think the attention is more on the presenter and not a two-way. It should be a two-way process in the tutorial shouldn't it? And actually we should be given more importance for questioning but I observe it has not been like that even from Asasi* one way.

*Asasi is a one year preparatory course in science taken by 'O' level passers at the University. Students on passing get admitted into year one at the University.
Neither was this student suggesting that IL was the best method for him although he did not appear to be averse to it.

(b) Lack of face-to-face 'contact' with lecturer in IL

The response from interviewee Student 3 on p. 4:21 led me to ask the other interviewees what they felt about not being able to 'see the lecturer, to look at his expression, to hear his voice, to have him explain concepts etc.' Students 1 and 6 suggested that to them it did not matter because even in the lectures they might not have the contact with lecturers.

S6: "I think it doesn't really make a lot of difference you know because even though we just look through the modules first but then I mean in a way this is better you know. We are we are we know what we are doing you know and then whenever we can't understand anything we will be seeing the lecturer isn't it? We will be discussing with the tutor or lecturer later when we really know that where we are not clear and have doubt we will be seeing the lecturers. So I don't think it will really make a lot of difference. Even though if the lecturer is there but then maybe his way of explanation may is not that good, that clear also I mean not much help also actually. That's what I think."

(My underlining)

Student 1 held a similar view:

S1: That (pause) that isn't a problem because even during lectures we know what kind of communication isn't it? He/she's in front, he/she just gives and we just sit and receive like this it means that there is no problem if we do it this way.

(T)

Another student was also of the opinion that it did not matter if they did not have the normal face-to-face contact with lecturers, but it is important to stress that these students expressed the need to be
able to consult and discuss their problems with their tutor or lecturer at some other regular time, as evident from Student 6's comments which I underlined and also the comments of the following student:

S1: ...because the lectures mm he/she gave overall we have during lectures we have no time I mean to rehearse, I mean in order we want to give questions which one we do not understand. I can simply go to you and then ask which (pause) the parts I don't understand you know like lecture that you go back and then during tutorial only you can ask the questions sometimes you forget what you want to ask.

There was a general feeling among the majority of the students that on the spot face-to-face contact with lecturers in the lecture was not crucial as long as they could get help at some stage.

(c) The self-paced facet of IL

I was interested to explore what the students felt about the self-paced facet of IL. Perhaps the students could not be expected to express genuine feelings, because they worked through the modules under certain constraints and pressure—which I have alluded to earlier. The most serious constraint was, of course, the students having to work through two long units a week and not one long or two shorter units in a week, as I would hope to do with the target population in the study. Under such limiting circumstances, it may be possible that the students' attitude towards this aspect of IL would be misrepresented. This might have been possible because one student could not perceive the implications of self-pacing his work and of attending an hour's lecture. He said:

S2: "Even though we are having lectures no doubt we have to attend one hour lecture but for this we also need to get (fade) consult. I would say the freedom for both methods would be almost the same. Lectures you have to attend lectures at certain time but here... You still have to give back to
you...pass up, consult our lecturers at certain time. After that one hour which is fixed time of course we also have the freedom to read up whenever we like or talk to the lecturer whenever we like."

One might infer from Student 2's remarks that she did not entirely understand the implications of having to attend a particular lecture at a particular time, compared to being allowed to work through what may be similar contents at her own time, other things being equal. There is a need to probe further into this.

Another student had a completely different attitude towards this facet of IL.

I: "In this type of learning situation you are practically left to yourself to pace your own work whether you want to work fast or you want to work slow. How do you feel about this?

S6: Well I think it's quite good. I am when I'm concerned I think it's good because anytime you know you know because I'm myself cannot pick one time and then sit down and then just for example let's say we have lectures we sit continuously for three or four hours like that. I cannot do that. For this one maybe I can only sit down whenever I feel like it and then I do my own work I think the result will be better.

I: Have you found that you work through the modules in one sitting?

S6: No, it depends on myself because certain modules and when I'm really in perfect condition I can really sit down and do one shot very fast but sometimes because there are many other I mean factors around...affecting me then sometimes I feel I can't really concentrate then I just do a bit and then if I find myself I can't concentrate I leave it aside first and come back later. That's why I find it is very good an advantage to have this system."

Student 6 indicated that she found this facet to her advantage because she could 'leave it aside and come back later' to it when she felt better. She was the student who fell ill during the pilot study and was
away for two consecutive sessions. When asked a similar question another student responded:

I: "So how do you prefer err these two aspects of these features of study where in one method you have to meet the deadline and in the other you can sort of put aside and do it at a certain time that you want.

S4: I think I prefer to be more discipline. That's why this type of self-instructional modules will be much better effective although I have to force myself to really discipline myself."

There is a suggestion in Student 4's remarks that IL can cultivate healthy study habits like 'force' himself to 'really discipline' himself.

(d) The effect of IL on students' learning efficiency

The students were asked whether they found learning by IL helped them to learn more 'efficiently'. Here I explained that by efficiently I meant being able to learn the content with more understanding, through better organisation of their time and manner of approaching their study. Student 6 responded thus:

S6: "Yah in one way it is because one thing there's no need to worry about what we have forgotten, because the modules always there whenever we have forgotten we just go back and just look through and then maybe just look through the short notes whereas in lectures I don't think we can do that because sometimes what the lecturer said we might miss out that's the danger part of it. That's why in this way it makes me I mean study more efficiently."

(e) Reading further

Most of the students when asked if they attempted to read further said that they had very little time, and in the controlled situation of the study they did not feel the need to read further. What was, perhaps, more pertinent was their view that they did not see the need to read further because the units were adequate in terms of the information that they
said they needed. These are two comments of the students with respect to this issue:

S6: "...but then I mean in actual case if this is supposed to be our lectures I mean the modules are supposed what we are doing you know then I think we might you know we might take the opportunity to find some books and read, because are really very interesting and then I like to know more but then when we were doing this project..."

S5: "For me, it is better like this (meaning IL) because I mean I know I go straight to the point which is required, I mean I don't have to waste my time..."

She added that if it had been part of her course she would probably be reading further on the subject. I doubt that students will take the trouble to make further reference if they can obtain all the necessary information from a written text. However, in the Malaysian situation while it would be desirable for students to be encouraged to learn from prescribed texts with study guides, I feel students who have learned to rely so much on the lecture and notes must first be weaned from this habit and then be trained to learn from prepared materials. Until such time when they have learned to accept their responsibility over their own learning, it would perhaps not be justifiable to expect them to discard a study habit which they have assimilated and accommodated over the years from school to university.

One of the implications of the study is to point in which direction future research in Malaysia must move, ie to study learning conditions in which students move from a heavy dependence on lectures to independent learning through prepared materials and in consequence, to an independent learning through their own exploration, accumulation of facts, analysis, synthesis and evaluation of knowledge from prescribed texts with study guides."
(f) **Is IL time consuming?**

I asked most of the students if they thought studying by IL was time consuming. The following quotes may reflect the general feelings of these students:

S1: "I think this method is less (time) because even lectures depends on us doesn't it? How we respond to lectures how we take and what are the important facts which we take down but in this everything is there before us to pick the points isn't it? Actually it is all laid out for us. If I can say this method is spoonfeeding... I altogether cannot cope up with the lectures."

S5: "No, I mean if you do this one three hours you understand you know. If you attend lecture one hour you cannot understand the whole one hour then if you go back you have to take the whole night to understand the lecture. Sometimes you cannot catch the words you know (when you return you have to look for the books that he used so like this) its already given there if you just turn to the page that you don't understand. It is easier."

(words in brackets are translated)
(My underlining)

S2: "If one of these is equivalent to one lecture then I would say this is lighter because after doing it you retain a lot because you do yourself so you sort of underlined what is important and after that you just do the activity and after doing the activities you have some idea whether you have absorbed the fact or not it's some sort of a test... You have some idea whether you really know what the test means...kind of satisfied. Whereas in the lecture after the lecturer has given you one whole rattling and rattling copy and copy and copy you don't absorb much. Then after that you have to go back and make something out of it aah that takes time you know and absorbing it just before the exam you really have to mug up."

(My underlining)

S3: "I wouldn't say that I think lectures also demanding I mean to be really to really understand what you have to read up and then especially our Science subjects. He only gives us bits and bits of formulae and then we have to go back and work it out in
what situation the formulae is important or not to deduce ourselves whereas here I guess what is emphasised is known what is important is quite emphasised. It's quite clear to us whereas in the lectures no. They just give us the formulae and whether we have to memorise the formulae or don't have to is up to us."

(My underlining)

S6: "I think in one way it is, it is quite demanding. If in lectures we let's say we come across over some difficult words or what usually the words we use in conversation are simpler you know but then whereas in the modules because it is in the statement form all being stated down so sometimes we find that some words its not the words are difficult you know but it's our vocabulary not that good you know so sometimes I mean it's quite demanding you know you stop half way you have to look up in the dictionary."

The inference that can be drawn from the first three quotes is that the three students I interviewed saw the IL as not more demanding than the lecture. Although more time and effort was being expended on IL in terms of knowledge acquisition, comprehension and retention, the IL materials were felt to be more beneficial to them than the lecture notes. The fourth comment was entirely related to what she said was due to her own lack of understanding of some of the words. This was of course a valuable feedback because it alerted me to the language issue of the ILM.

(g) Partnership system in IL

One of the facets which was used in the pilot study was the partnership system. The six students were not all from the same course and further, the pilot exercise was outside their own scheduled time so that they were not always free at the same time. Nonetheless each of them had some opportunity to engage in a discussion with their partner or friends within the sessions which had been fixed for them. So their responses and feelings were reliable only in so far
as they were able to do this. Here are some quotes to illustrate what the students felt about working within a partnership system.

I: "Were you able to work with your partner?
S3: I wasn't able to work with my partner.
I: Why was that?
S3: She's taking different subject foundation and we seldom meet you see only certain times and some more when were doing these units we were having tests it clashed with our test so we don't have we can't when I'm free she's not free when she's free I'm not free.
I: On the few occasions?
S3: On certain topics only not really."

S5: As for us I prefer if there is a partner you know (her partner was S3)
(T)

S1: It is good of course that we discuss. He/she gives his/her views we give our views that's good but we have to confine it to what is given to us, so quite restricted also.
(T)

S6: "I mean it's quite effective you know sometimes if we can't understand. Maybe due to our understand you know sometimes the power of understanding is not that good. This is I mean sometimes a phrase or a sentence we just read through and then we can't really grasp the idea so when we just discuss point it out to the partner then she just simply mentions something what she understands and then immediately you can see the point there you know and then it helps you know I mean it's advisable to work with a partner."

As this was a facet which appeared to be quite acceptable to the six students and, small though the sample may be, it would be worthwhile to research further into its feasibility and effectiveness under more favourable circumstances.

(h) Given the choice would students learn by IL again

The final question I asked some of the students was
whether they would, given the choice, learn by IL again. The responses were interesting. Two of them seemed to suggest that they would like to learn by IL as long as they were going to be able to interact with their tutor as these comments suggest:

S6: "I think I would, I think I would like to.
I: I mean if you have a course conducted for you \(\text{and it's done this way would you say 'Oh God'}\)?
S6: (laughs) No, it depends but then the thing is I mean I have to see the lecturers quite often also you know even though I mean even with the aid of these modules and then I go through but then I still have to see the lecturers often to get the confidence in myself (laughs)

(My underlining)

Student 2 preferred to learn by IL only in some subjects as this interviewee commented:

S2: "I would like lectures also. I wouldn't like all my courses to be done this way but a few of them."

4.3.3 Summary and discussions

1. For the six students learning from the ILM in the pilot study this was their first exposure to IL. They indicated that they had all along been taught by lectures and tutorials and in the case of the Science students by laboratory work. The students expressed a general dissatisfaction with the lecture and tutorials. The lecture was regarded as teacher-centred with little feedback from students. The tutorials were seen to be large in numbers and relatively not helpful. There were indications that different lecturers do different things at tutorials, a finding which endorsed the finding in Chapter 3. The criticism was not so much directed towards the tutorials, but to the purpose of the tutorials eg one student suggested that at a tutorial solutions and answers were provided thus making them lazy. Another student also indicated that the tutorials that tested students' knowledge and understanding of the lectures through the process of questioning was also purposeless, because when students attended the tutorials they had no questions in mind. This
seems to suggest that the lectures had not made any particular impression on the learners as to have an arousal effect on them. There are implications for investigating the nature of student learning from the lectures and also on ways to improve the tutorials.

2. There was some evidence to suggest that the lectures were perceived to be more effective for transmitting large amounts of knowledge and that IL was more effective than lectures for understanding and retention. This raises the question of the justification of lecturing for the purpose of transmitting bulk knowledge. The implication is for studying a more efficient teaching method that is not only more economical in terms of lecturer time, but also more effective. 'Economical' is here used to indicate lecturer time that should be put to more advantageous use eg interacting with students.

3. There are some indications that IL was perceived to be 'new' and therefore generated sufficient enthusiasm for it to be regarded as 'more interesting' and 'more fun'. A more extended study in a realistic situation would provide a better insight into the impact of IL on students and student learning. Hence its implications for investigating IL over a longer period of time.

4. There is a suggestion that the majority of students in this study would not miss the face-to-face contact with lecturers in the lecture situation, provided they can interact with the tutor or lecturer at any other regular time for the purpose of consultation. It may be inferred from this that for IL to be acceptable to Malaysian students, at least at the initial stage, it has to be complemented with regular tutorials or other suitable teaching methods, that can allow interaction with the
lecturers. The fact that students favoured and enjoyed working with a partner also suggests that interactive learning situations are desirable.

5. There is evidence that the majority of students found the self-pace facet of IL advantageous. There is also a hint that IL can induce good study habits. This has implications for investigating students' study habits which has not been adequately explored in this pilot study.

6. There is little evidence on student study approaches. Retrospectively, I have not probed adequately into this. The indications suggest that students adopt a more favourable study approach when learning through IL.

From reading the transcripts many times, students appear to suggest that they understand better because there was more pressure on them to work. They also invested more self-effort into the reading of the materials. In the case of lectures, the lecturers provide them with notes. They may or may not read further. Substantial time is also used up to understand the notes and fill in gaps. On the other hand there is also an indication that students learn more efficiently from the lecture because the lecturer explains concepts etc., and that students can see and hear lecturers' physical and verbal expressions. Students' study approach is an important aspect to be investigated further.

7. In the final analysis students were asked to what extent they would learn by IL again. The majority were quite positive towards the idea and a couple were neutral but not averse to the idea.

4.3.4. Conclusion

These findings are only tentative. The number of students was too small to enable me to make valid assertions. The findings may only be relevant to point out some of the
issues which are important to consider when attempting to apply an innovation to a Malaysian situation with Malaysian students.

As there are indications that IL have advantageous facets for promoting effective student learning, and as students showed no aversion to it, IL as a teaching method may merit further investigation in a more realistic situation in Malaysia and over a more extended period of time.

4.4 Part III: MONITORING THE ILM IN THE MAIN STUDY

4.4.1 Introduction

In the main study two methods of monitoring the ILM were used. At one level, a short Feedback Sheet (Appendix B4) was included in every unit of the ILM. All the students who had used the materials were asked to return the feedback sheet when they had completed each unit. The purpose of this was to assist future revision of the ILM.

At another level Questionnaire 3 (Monitoring Individualised Learning Materials, Q3-MILM, Appendix B5) was administered to the twenty-five students of group 05 at STTI, who had used all the seven modules (thirteen units) of the ILM. Unlike other groups who had used only three modules (six units), group 05 students could provide more credible assessment of the entire set of learning units. However, the evaluation of the ILM by a group of students in the FEUM was also valuable in portraying the general perceptions of these students to the ILM. This is discussed in section 4.4.2.2.

As far as the lecturers were concerned their evaluation of the ILM was entirely based on the interviews I had with them which is discussed in section 4.4.2.3.

4.4.2 Results of Evaluating the ILM in the Main Study

4.4.2.1 Evaluation of the ILM by the Case Group

The perception of the Case Group to the ILM (Q3-MILM) are presented in Tables 4.1(a) to 4.1(c). Several points may be noted from these tables.

1. The majority of the students rated every feature in the ILM
### Table 4.1(a)

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<td>OVERVIEW</td>
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<td>2</td>
</tr>
<tr>
<td>b</td>
<td>OBJECTIVES</td>
<td>6</td>
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<td>3</td>
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<tr>
<td>c</td>
<td>EXPLANATORY NOTES</td>
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<td>d</td>
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### Table 4.1(b)

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</tr>
</tbody>
</table>

### Tables 4.1(a), (b) & (c):
Monitoring ILM By Group 05 Students At STTI
'moderately useful' but no one rated them as 'no use at all'.
The 'abstracts', 'self-tests' and 'activities' were rated moderately useful but the majority of the ratings lie at 3.
There is indication from the implementation of these ILM that some activities and answers had caused some confusion (mentioned in Chapter 10), because of the mismatch between answers and the questions which were not at first detected. Also the abstracts from Bloom's Taxonomy ('h' in Table 4.1(a)) might not have served their purpose in terms of explaining the contents of the modules on objectives.

2. The average time taken by the majority of the students was between 1 - 3 hours.

3. The module that was perceived to be the hardest and the one that took the longest time was Module F on 'Constructing Objective Questions'. The easiest and the one that took the shortest time was perceived to be Module A on 'Aims and Objectives'.

4.4.2.2 Evaluation of the ILM by FEUM students

It may be possible to gauge how the FEUM students evaluated the ILM (Modules A, B, and C in the Malay Language) from the responses of one group of 33 Science students. The lecturer who tutored this group spent three tutorial sessions with his students to obtain their reactions to the materials. He explained that he used his tutorial times to get an evaluation of the ILM with a view to responding to me later. By a process of questioning, verbal communication and a show of hands he obtained a feedback from the students on aspects of the ILM which related to the clarity and value of the ILM and the time taken. He also asked his students whether they peeped at the answers (an aspect which I have not investigated) and whether or not they enjoyed working on the modules. His findings which are tabulated here represent his descriptions of the students' responses to his questions which I have analysed from the transcripts of the interviews.
Time taken to work through the modules:

<table>
<thead>
<tr>
<th>Module</th>
<th>Less than 2 hours</th>
<th>2-3 hours</th>
<th>3-4 hours</th>
<th>4-5 hours</th>
<th>More than 5 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
<td>16</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>(a few)</td>
<td>11</td>
<td>11</td>
<td></td>
<td>(the rest)</td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td>15</td>
<td>13</td>
</tr>
</tbody>
</table>

Peep at answers:

Module A: 16 students looked at the answers once 17 students did themselves
Module B: 5 students looked at the answers once The majority of the students did not look
Module C: The majority of the students did not look

Clarity:

<table>
<thead>
<tr>
<th>Module</th>
<th>Very clear</th>
<th>Not very clear</th>
<th>Average</th>
<th>Quite clear</th>
<th>Very clear</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>8</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>(cannot be fairly assessed)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td>2</td>
<td>22</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2</td>
<td>0</td>
<td>11</td>
<td>21</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Value:

<table>
<thead>
<tr>
<th>Module</th>
<th>Not helpful</th>
<th>Not very helpful</th>
<th>Average</th>
<th>Quite helpful</th>
<th>Very helpful</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>2</td>
<td>22</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td>1</td>
<td>20</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

Enjoyment:

Module A: 22 Students indicated that they enjoyed "a bit"
Module B: (the students' responses were affected by the discrepancy between some questions and their answer)

On the basis of this and his discussion with his thirty three students, this lecturer made some following observations:

1. The students' evaluation of Module B was not reliable because there was a discrepancy between some of the activities and answers in the translated modules.

*BM - Bahasa Malaysia or Malaysian language
2. The evaluation was also affected by the lack of competence of some of the students in the use of the Malay language.

3. He suggests that the students rated the modules average and above average on the whole on the various aspects considered. He found that the majority of the responses "were averaging around 3 or 4 which meant" he said "that it is on the better side" and that in terms of 'enjoyment' the students' responses were again "about the middle like average".

4.4.2.3 Evaluation of the ILM by the lecturers

The lecturers provided feedback on the ILM which varied very much. Three lecturers commented that they had not themselves gone through the materials thoroughly to be able to offer constructive criticisms. Nonetheless, there was substantial feedback on the content of ILM from the rest of the lecturers which focused mainly on the adequacy of the content, language and the presentation of the ILM. Some quotes related to these are listed below. These do not, however, represent consensus views. They only sample the range of views which have been expressed by the lecturers about the ILM. In some cases, the views of two lecturers within the same college appear to be contradictory eg in the second and third comments.

On content

(SEUM): "Objectives is a very basic topic...this is a good topic for SIM (self-instructional materials)...but I can see that there will still need to be some discussion...a bit more explanation. It was probably a bit brief..."

(STTI): "Personally I feel that especially on modules A, B, and C on objective writing - they have never done such detail lessons on writing objectives...It's a new dimension...they don't even know the taxonomy...I feel that is good in the module you have
added objectives as part and parcel of your package on testing and evaluation because it's very relevant, whereas in the past we have detached it completely ...there's linkage between objective writing and test items...

(STTI): "The modules tend to treat important topics to us too generally. Perhaps more time can be devoted to it like for example objectives. Instead of having just three modules more modules...because an important area."

(STTI): "I feel this one (module E on Table of specifications) need not be a module by itself...maybe it is good for the lecturers..."

(FEUM): "Aims are not clearly distinguished from general objectives."

(FEUM): "The materials are very useful in terms of what students are to do."

(STTI): "The thing that I find very useful is changing aims to specific objectives... students have time to sit down and consider how to change aims into objectives, whereas in my lecture it is not possible..."

(STTI): "Overall content is satisfactory gives opportunity for students to try out in very concrete terms how to write objectives."

(STTI): "Modules on essay and objective tests - those were good. The students from English medium they could see the significance."

(FEUM): "The materials made too fine distinctions."

(STTI : "More examples and activities can be incorporated."

(FEUM): "The students would like more examples... some (examples) being in one particular Maths Method they made comments like examples from a number of different subjects was not helpful."
On language difficulty

(STTI): "The students find it easier, possibly to tackle the modules that are in Bahasa than the modules that are in English."

(FEUM): "They found it difficult...I did ask whether it was because of the Bahasa...some later indicated that BM was a problem...these were students from Sarawak and Sabah."

(FEUM): "It doesn't seem like a translation."

(FEUM): "The language is somewhat anglicised" (T)
...I think some parts of it might be translated from English...with no attempt...to redo it from the style of you know a Malay writer..."

(STTI): "Shift in language is confusing."

On format

(STTI): "Modules do not have enough personal warmth of the lecture...certain modules with cartoons change the mood a bit. Attention tends to become more..."

(STTI): "I feel that in individualised learning there ought to be the component of the pre-test, post-test, otherwise the students won't be able to gauge their progress..."

(FEUM): "It's pleasant to go through the module...pictures and things like that...makes studying more pleasurable...it's not just stark words..."

(STTI): "It will be a good idea to put the reference straight away rather than wait till the second unit."

4.4.3 Conclusion

It may be inferred from the varied responses of the lecturers and the evaluation by the students, that it would be difficult to meet the requirements of every individual lecturer and student when designing and constructing ILM. However, with greater effort at consultation with experts and cooperative work between module
writers, one may be able to strike a happy medium.

The ILM which were used in the present study could have benefited from a more extended writing, reviewing and rewriting, but this was not possible within the time constraint of the entire study. Nevertheless, from the general remarks that the lecturers made, relatively positive remarks from the students about the ILM, I feel confident to suggest that the ILM were quite satisfactory for the purpose of the study in the light of the fact that the ILM was not the critical issue in the study. In fact, a perfect set of ILM could only have been seen to induce the students and the lecturers to react positively to IL as a method of teaching. The set of materials which I have used in the study were anything but perfect from the students' and lecturers' points of view.
CHAPTER 5  RETHINKING: FUTURE DIRECTIONS IN RESEARCH AND STATEMENT OF THE PROBLEM

5.1 INTRODUCTION

The purpose of the pilot study was to identify the teaching and learning issues in the Malaysian context and to get a feel of the contextual reality where the main research was going to be grounded. Getting a feel of the contextual reality for me implies exploring the feasibility of applying a preformulated research plan and methodological stance in the real context and where the critical issues to be researched is an innovation, then this implies fabricating the innovation in a pilot situation which is as close as possible to reality. Hence working with the six students in a teaching and learning situation using IL as the method of teaching was an attempt at the latter, and by immersing myself in the research context, I was able to hold informal talks with the lecturers who I anticipated would be participants in the study.

Recognising the complexity of the teaching and learning situation as the 'rumpled reality' rather than the 'immaculate ideal' (Parlett, 1972), I was prepared to pay heed to emerging unexpected issues and to respond to these, and the inevitable methodological problems, with what I recognised to be more crucial and realistic. As Dearden and Laurillard (1976) suggest:

"One characteristic of an evaluation grounded in reality as opposed to being preordained, is that the evaluator must be an opportunist seizing on every occurrence that might afford some further
Although this was written in reference to hospital teaching, the same organisational conditions characterise the Faculty of Education, University of Malaya (FEUM).

It is to be emphasised, however, that the research focus has not at any time deviated from the central theme of investigating IL in a Malaysian context. The findings in the pilot study definitely point to a need for research into IL in Malaysia for three main reasons:

(a) Across eight faculties in the University of Malaya, the indications suggest that there is little knowledge and/or experience of IL.

(b) In the Education Faculty, although 75% of the fifteen respondents indicated having a knowledge of IL, their conception of IL varied tremendously. And although 56% indicated having an experience of IL, there is no evidence of the widespread use of IL. In fact, I would suggest that IL in the form that it was used in this study, has not been a teaching method practised in the FEUM or in any other faculty.

(c) Both lecturers and students in the pilot study generally showed no aversion to IL. Instead there was evidence that they perceived IL as viable and advantageous for student learning.

This chapter traces the methodological shift and shift in aspects of the research content, to the emerging issues and problems encountered in my three months sojourn in the real context in Malaysia, and sets the scene for the main study.

5.2 BASIS FOR 'NEW' DIRECTIONS

Generally, three main reasons led me to rethink and suggest 'new' directions in the research. The first two were
responsible for the shift in research context. These, and the last, direct the methodological stance of the main study. These three reasons relate to:

1. the difficulty of conducting the research in the Faculty of Education, University of Malaya as was originally planned;

2. the feasibility of conducting the research in a teacher training institution;

3. issues which emerge from the survey and pilot project which have helped me to focus on relevant and important aspects of teaching and learning using IL as a teaching method.

5.2.1 Research in Faculty of Education, University of Malaya (FEUM) was found to be limited

In the provisional research design, the study was to have been carried out with DipEd students at the Faculty of Education, University of Malaya. There were to have been three experimental groups of fifty students in a group (see Appendix C). These groups were to have been mixed groups in terms of their methods courses. The time which I required was at least 10 student hours to be taken from the 60 hour Methods course.

Four main problems rendered the research at FEUM impractical:

(a) The most obvious constraint was time. It was difficult for me to fit my study into the very tight schedule of the Diploma of Education course which covers only about seven months of the year, of which two and a half months are devoted to teaching practice.

(b) Most of the lecturers I talked to seemed to suggest that students could not spare the 10 hours considering the amount of work that they had to cover within a tight time allocation of the DipEd course.

(c) For the core courses eg Psychology, the student population of 600 at FEUM is divided into three or four groups of 150-200 students in a group. Each group is under the
charge of one lecturer, each of whom runs parallel courses covering the same topics. My original intention was to sample only one group for the proposed study but this could not be done because the partial treatment of selected students at the expense of other students, was not acceptable to the administration. To experiment with all groups of 600 students would prove too daunting and too expensive.

(d) Experimenting with the Methods groups (the 600 students were also split up into small Methods groups of 30 students to a group), was also not viable because there was a lot of overlapping between courses done at core level and at Methods level. Consequently, I had to abandon this idea too.

I was, nevertheless, given the assurance that any research that I would carry out in the Faculty could be an informal arrangement between me and the individual Methods lecturers concerned, who on their part would have to use their own discretion with regard to this arrangement. I took up this suggestion and, subsequently, eleven Methods lecturers agreed to participate in the study by using the ILM with their respective Methods students.

5.2.2 Feasibility of Research in Specialist Teacher Training Institute (STTI or its Bahasa Malaysia equivalent - MPIK)

In the meantime, my communication with the Teacher Training Division of the Ministry of Education proved advantageous. As I was fortunate to discover, the Teacher Training Division was into IL or 'modular teaching', the term they used for IL, and it was piloting a set of IL materials with selected teaching training colleges. Looking upon this as being quite opportune, I requested permission to carry out my study at the STTI, Kuala Lumpur, but only after having spoken informally with, and obtained the agreement of, the Head of the Education Department at STTI who herself was quite involved with the 'modular teaching' project I mentioned earlier.

The following were some of the favourable factors which were conducive for grounding the research in STTI:
(a) The teacher training course at this institution was for a period of two years (since 1981 the course has become a three-year course).

(b) The topics on Objectives and Assessment which form the content of my ILM, are topics which STTI also covers in their syllabus in one term for two hours a week for ten weeks. However, the teaching of the 'assessment' aspect has not been related to the teaching of 'objectives'. The latter, I was informed, was normally dealt with separately and generally. (I have in Chapter 4 explained the rationale for selecting the content of the ILM that would have utility in both contexts of teaching.)

(c) The students in the education courses were conveniently grouped in individual classrooms according to their Methods courses eg the group that I worked with was a group who were trained to teach English and Art in lower secondary schools after their two years of training. I mention that the grouping into classrooms was convenient, because this made it possible for me to assume the teaching for a term without disturbing the normal set up of the class and the institution generally.

5.2.3 Shift in Research Context

The shift in the research context from PEUM to STTI and FEUM and grounding the research in the classroom, necessitated a change of research methodology from a quasi-experimental approach to a naturalistic approach using mainly qualitative research methods. The shift in methodological approach, however, was not entirely due to a shift in research context. It was more due to a growing awareness, after my contact during my brief sojourn with the 'realities' or 'unrealities' of carrying out an experimental research programme where there were so many variables to control but which could never be controlled satisfactorily, to make the study viable or even meaningful. Besides, there were emerging issues (section 5.3) which I felt were significant to dictate a more phenomenological (Giorgi, 1971) approach of investigation.

The next section outlines some of these emerging issues and problems that have influenced the 'new directions'.
5.3 EMERGING ISSUES AND PROBLEMS AND THEIR IMPLICATIONS ON THE STUDY

5.3.1 Different Teaching Methods Induce Different Study Approaches and Habits

In Chapter 4 there was a hint that students study differently in different teaching modes and develop different study habits. For example, in terms of study habit one student suggested that he could 'pile up' his lecture notes but not the IL materials because assignments are built into the ILM and deadlines have to be met. There was also a hint that in IL students used a different study approach. One student indicated that he could go back and forth with the ILM. Another suggested that she could concentrate and pay more attention when reading the ILM. This seems to suggest that different modes of teaching can promote different study approaches. It may be suggested also that students may be induced to adopt a 'deep level' approach (Marton and Saljo, 1976) learning in an IL situation. There are implications for investigating this aspect of IL in the main study.

Much of the research in the West on teaching methods has evaluated the effectiveness of teaching methods on the basis of examination results (Dubin and Taveggia, 1968; Taveggia, 1976; Peterson, 1979; Kulik, 1976; Green, 1976). More and more there is a need to look at how students in higher education learn (Boud, Bridge and Willoughby, 1975; Clarke, 1980). In Chapter 3 the lecturers in the University of Malaya also seemed to suggest the importance for students to develop specific study skills. Hence this study will address itself to the important issue of student learning ie students' approach to learning and the habits they develop in learning through two modes of teaching - IL and the lecture. A study which examines the personal perspectives of individuals to their own learning process necessitates a research methodology that is both illuminative and phenomenological (Parlett, 1974; Giorgi, 1971).
5.3.2 The Lecture is Ineffective for Promoting Student Learning

In the Malaysian context the traditional methods of teaching - lectures, seminars and tutorials are, I suggest (Chapter 3), ineffectively used by both lecturers and students. The lecture was perceived by the lecturers as useful for imparting bulk knowledge but was described as a learning situation devoid of interaction in which the students are completely passive. Interestingly in Chapter 4, while the students admitted to be dissatisfied with the lecture, they indicated that the lectures are useful because of the explanation from lecturers. This raises two pertinent questions:

1. If students perceive the lectures as valuable in terms of acquiring lecturers' explanations, what would be the justification for lecturing with the aim of transmitting bulk information when students could just as well be reading from set texts or prepared materials?

2. Shouldn't the lecture be confined to just the explanation of difficult concepts and ideas?

The idea of inducing students to acquire knowledge from printed materials and using the lectures minimally for introducing and clarifying difficult concepts, is worth investigating. This suggests an exploration into students' perspectives to the different 'learning inducing' facets that are in-built within each method of teaching - the IL method and the lecture method.

5.3.3 Improving the Tutorial System

5.3.3.1 The tutorial as a useful adjunct to IL

Using IL as a method of teaching in which students work on prepared materials may have implications on the conduct of tutorials, which may be different from the usual traditional practice. I would suggest that the tutorials would become a more useful and effective adjunct to IL than they might have been in the case of lectures.
In Chapter 3 the lecturers cited analytical and communication skills as the two most desirable skills to develop in students. They perceived the lecture as least valuable for developing these and instead rated IL somewhat higher. However, the tutorial was perceived as very suitable for developing both skills, but the comments which described the tutorials were not very encouraging. The tutorial has been described as 'farcical', 'ineffective' and 'mini-lectures' (Ch. 3).

In my view, the problem does not stem from the tutorials themselves, but from the 'stage of preparation' for the tutorials. The lectures appear to be inadequate to prepare students for the tutorials (Chapter 4) either because the lectures do not provide follow up tasks for tutorial purposes, or the time between lectures and tutorials may be too short to allow students to do much research on the subject matter in preparation for the tutorials (Phillips, 1977).

As a consequence, students attend tutorials without having read sufficiently or having formulated questions in their minds. Learning through ILM, where problems, assignments and self-tests are built in, can bridge this gap that invariably characterises the lecture with tutorial teaching situation.

Clearly the implications of this is for improving the tutorial system to allow for the following to happen:

- increase interaction among students and lecturer which is critically lacking in the present system;
- increase student participation in discussion which would help promote verbal communication skills;
- in the context of IL to help students reformulate the knowledge acquired from the ILM and to apply it to different situations.

5.3.3.3 Different tutorial structures

(a) Individual tutorial

Using IL as a mode of teaching and having as one's main aims the above, may necessitate different tutorial
structures. For example, individual tutorials within a tutorial time and session on aspects related to the ILM, can provide more personal contact between individual students and the lecturer. However, this may be lacking in terms of providing opportunity for verbal communication and interaction among students. The literature suggests that students, learning in an IL situation, expressed loneliness when learning by themselves. There are implications here for suggesting a tutorial situation which can not only accommodate students' needs to acquire personal help from the lecturer, but also to accommodate their social needs to interact with other students. This need is evident from the responses of the six students in the pilot project.

(b) Group interaction tasks

In the light of this desirable end, the study proposes to investigate the effects on student learning of IL with group interaction tasks (GIT). The combination has the additional advantage of making good what is perceived to be a limitation of IL, ie it is difficult to raise more difficult problems in IL (Elton, 1979, found that this was one criticism directed against IL). Group discussions on the basis of knowledge acquired in IL can overcome this limitation as well as (Cryer & Manwaring, 1977; Lopez and Elton, 1975; Boud, Bridge and Willoughby, 1975) enable the extension of knowledge to new situations. Brewer (1977) suggests that interactive group teaching requires students to draw upon and integrate material from two or more modules.

The attainment of the aims I have suggested through group participation should not, however, lose sight of the need for the individualisation of student learning. Students should, as far as possible, be encouraged to learn by themselves even within an interactive learning situation. To the degree that individualisation of
learning also exist in interactive situations (Romiszowski, 1978-1979), then group teaching can also be aimed at individualising learning and is a teaching method worth investigating.

The critical issue at this stage is to determine how the tutorial system can be improved without upsetting the present imbalance in the high ratio of students to lecturers, a phenomenon which is very typical of the tutorials in a Malaysian context (Phillips, 1977; the findings in Chapters 3 and 4). This study attempts to look at alternative frameworks towards structuring tutorials using IL as the predominant method of teaching and the effects of each structure on student learning.

5.4 LECTURERS' AND STUDENTS' PERSPECTIVES TO IL IN THE CONTEXT OF OTHER TEACHING METHODS

It has been said (Kevill and Shaw, 1980) that a teaching and learning situation, in which there is shared understanding, has a significant bearing on student learning. There is some evidence from the survey that lecturers' expectations of students in relation to teaching methods, such as the lecture method, differs from the students' perceptions and expectations of teacher role in the lecture. Some lecturers shared students' opinion that the lectures were not helping students to learn and that there was no contact between students and lecturers.

With respect to IL, some lecturers did not feel that IL was suitable for Malaysian students because they are used to being 'spoonfed'. The students, on the other hand, generally felt that they found IL 'quite interesting' and that they 'learned a lot' through this method.

A study which also focuses on the nature of constructing by both lecturers and students about a range of teaching methods and the place of IL in this construction, can prove insightful and the results may have value to the teaching and learning situation in teacher training.
Such an exercise can help put IL in perspective within the context of the expectations of lecturers and students regarding teaching and learning.

5.5 STATEMENT OF THE PROBLEM

Drawing on what has been discussed, I now state the general research focus and stipulate some of the pertinent questions related to this.

The general purpose of the study which is Malaysian based is

"to explore alternative teaching methods and their implications on student learning. As IL is a teaching method which has been found to be flexible and applicable to a number of situations, and as lecturers and students have not shown an aversion to it, the key teaching method that would be investigated in this study is IL. The investigation of other teaching methods is meant to be related to IL."

Specifically, the study will address itself to the following questions:

1. (a) What learning approaches do students use when studying through IL and the lecture?
   (b) What study habits do students develop when learning from IL as distinct from the habits that they develop when studying through the lecture?

2. (a) Do students perceive interactive learning as a useful and necessary adjunct to IL?
   (b) What are students' perceptions to two modes of interaction: individual tutorial with the lecturer and interactive group activities within the tutorial structure?
   (c) How can small group teaching take over from where IL leaves off and provide avenues for extension and application of knowledge?
3. What are the perceptions of lecturers and students to the impact of IL on student learning in the context of a range of other teaching methods?

The main theme of the research and its specific correlates are centred upon issues which have partly evolved from the open responses of students and lecturers in the pilot study. Although they serve as a framework within which the study is to develop, they are not pre-specific and inflexible, but rather they contain the study within certain perspectives but still allow unexpected issues to emerge naturalistically. By using a triangulated methodological stance (discussed in Chapter 7) using both quantitative and qualitative approaches, the perspectives are maintained while deeper issues within those perspectives are continually unravelled and progressively focused, Dearden and Laurillard (1976).
6.1 INTRODUCTION

The focus of the literature review in Chapter 2 has been on general issues on teaching and learning and the effect of aspects of IL and lecturing on student learning. That review, however, has not looked closely at the nature of student learning and what implication this has on the present study.

This chapter reviews some of the research studies which are related to this. Two distinct types of studies appear to predominate the current literature on student learning. There are studies which investigate students' study methods and how these relate to their academic achievement. The method of investigation used in these studies were the questionnaire or inventory (Entwistle and Hounsell, 1979; Biggs, 1979; Wankowski, 1979). More recently, research on student learning focuses on the different styles and approaches that students adopt in their learning using a naturalistic and qualitative methodological approach (Marton and Säljö, 1976; Laurillard, 1978; Ramsden, 1979). This method constrasts significantly with traditional evaluation which tends to ignore the conscious control of the learners over their strategies to learning.

The findings from both types of studies may have important implications for the present study. However, this review can do justice to only a selected few which have relevance to the present study.
The area on student learning abounds with terminological problems. The terms 'style', 'strategy' and 'process' do not have universally agreed meanings (Laurillard, 1979). It is, therefore, essential that this review should precede with a clarification of these terms. Laurillard (1979) distinguishes the terms 'style' and 'strategy' as used by Pask (1976) from the term 'process' and 'strategy' as used by Marton and Säljö (1976). To Marton and Säljö the terms 'process' and 'strategy' are synonymous and refer to the student's focus of attention when he learns something. Hence they describe student learning in terms of levels of processing. Pask, on the other hand, uses the term 'style' and 'strategy' to refer to the way the student thinks about the subject matter itself, the way he relates one topic to another (Laurillard, 1979). Laurillard herself defines the 'process of learning' as including at least two aspects: 'executive style' (as in Pask's 'style' and 'strategy', referring to the way the student thinks about the subject matter), and 'strategic approach' (as in Marton and Säljö's 'processing', referring to the way the student approaches the task). She suggests that if 'executive style' and 'strategic approach' "do indeed define different aspects of the learning process, then they should be mutually compatible".

Clearly, 'style' has been distinguished from 'process' or 'approach' but each has a functional relationship to each other and to student learning. In the present study the term process will be used interchangeably with approach or strategy as understood in Marton's work. The term style instead will refer to more dichotomous descriptions of learning as in Pask's 'holist' and 'serialist' or Witkin's 'field dependence' and 'field independence', all of which have implications on the approaches to learning (Witkin 1977). In the present study the focus is on the process of student learning and study methods. Study strategies alone account for very little variation in learning outcome unless they also account for a student's learning approach.
6.3 CONCEPTUAL FRAMEWORK OF LEARNING

6.3.1 'Deep Level' and 'Surface Level' Processing

From the literature it seems possible to explain student learning in terms of specific frameworks. One framework is to view it in terms of the qualitative differences in which students approach their learning tasks (Marton and Säljö, 1976). These researchers from Göteborg University in Sweden have carried out studies which have remained close to the students' experiences. In one of these studies Marton and Säljö investigated how students tackled the task of reading academic articles. In one of their experiments each of the students in the study was asked to read an article for the purpose of answering questions afterwards. The interview started with a general question and by a process of 'prompts' and 'probes' the students were encouraged introspectively to describe how they had interpreted the instruction, what they expected to get from the article (their intention in approaching the task), how the experiment had affected them and how they went about their normal studying.

The interviews were tape-recorded and transcribed and their responses analysed first holistically and then according to separate questions, allowing consistent explanatory concepts to emerge as well as evidence of inconsistencies in the approach taken by students. Marton and Säljö found that students used two distinctive levels of processing. These levels of processing are related to the focus of attention of the students and is dependent on the content of the learning tasks: the two levels of processing identified were:

- deep level processing which occurs when the student considers the intention of understanding the meaning of the article, questioned the author's arguments and related them both to previous knowledge and to personal experience;

- surface level processing which occurs when the student concentrates on the text itself i.e. he has a 'reproductive' conception of learning which means that he is more or less forced to keep to a rote-learning strategy.
In deep level processing the student is directed towards what is signified, while surface level processing is directed to the sign (Marton and Säljö, 1976). By relating these levels of processing to the categories of learning outcomes obtained from the students' summaries of the text, Marton and Säljö were able to show that levels of outcome i.e deep level processing produces a deeper level of understanding than surface level processing, which simply allows the students to produce portions of the text. Perry (1970) suggests that surface level processors could graduate to being deep level processors. The findings by Säljö (1979) and Brew and McCormick (1979) however suggest that students who are surface level processors may find it difficult to move to a fully deep level approach. This may suggest that students need time and experience to alter their conceptualisation of the learning situation and adopt new learning approaches and study strategies (Perry, 1970). Entwistle (1981) finds that Marton's description of deep approach implies one route towards understanding, whereas students may develop intellectually towards the same goal along different paths. Deep approach may involve rote learning on occasions but memorisation alone cannot lead to deep level understanding (Entwistle, 1981).

It has also been found that students' learning approach is dependent on the nature of the task (Laurillard, 1978). Thus students will adopt a surface approach to some tasks, and a deep approach to others. In a study of thirty one students, using Marton's approach, she found variability in the students' approaches to contrasting academic tasks. Nineteen of the students used different strategies on different occasions, while twelve used deep approaches every time. She was able to establish on the basis of this that 'surface level processing is not merely the approach of a lazy, innovative student, but as a chosen, rational, expedient strategy commensurate with the conditions of the task'. On the basis of this variability, she observed that the different characteristic approaches to learning tasks are not the characteristics of the individual student, but of the student in relation to a particular context (see also Ramsden, 1979). Similarly, Laurillard also examined the consistency with which students can be classified as either 'operation' or 'comprehension' learners (Pask, 1976). On examining the protocols from interviews for styles of learning, she
found that students may use both styles in studying the same task. She attributed the choice of styles also to the nature of the subject matter itself and in particular to the perception of what the teaching provides them with. In the final analysis Laurillard concluded that "students cannot be characterised only in terms of a dichotomised description of learning, that it cannot be assumed that learning can be investigated independently of the external factors, and that students possess inherent invariant styles of learning".

6.3.2 Students' Conceptualisation of Learning

Studies have also found that students adopt different approaches in their learning subject to the way they think about learning. A study by Brew and McCormick (1979) clearly demonstrates this. They evaluated an Open University Course in the University of Essex which was used alongside conventional lectures. Brew and McCormick reported that students were experiencing difficulties in knowing how to study the text material. The students were said to indicate employing an inappropriate learning approach which was derived from their experience in the 'conventional' courses, and yet the main reasons given for their difficulty was the bulk of reading involved and the difficulty of reducing the material to a 'manageable' proportion. These researchers attributed the difficulties to the students' conceptualisation of learning and knowledge. They suggest that the learning process may be perceived as the accumulation of facts or the linking of ideas into particular relationships. In the conventional courses this has led students to view the lecture either as materials which represent the framework on which students had to build on in their own thinking and further reading (the tip of the 'iceberg'), or as the subject entirely to be learned for the examinations (the whole 'iceberg').

Thus, those students who saw learning as the process of absorbing knowledge then revision of lecture material, can theoretically be accommodated in this way. These students would tend to use a surface level approach. Those who saw learning as a process of linking ideas into relationships may also treat the lecture material by linking ideas using deep level processing (see also Hodgson, 1978).
Studying from an Open University text assumes that learning is of the latter type; i.e., the text assumes that knowledge consists of ideas and concepts in particular relationships, so that learning has to be effected in terms of such relationships. In such circumstances, demands on students' learning approach may be inconsistent with the students' own views of what learning constitutes and the normal approach they were used to (see also Säljö, 1979). Brew and McCormick suggest that learning from textual materials tend to inhibit both passive and active learners. An active student in their case study, for example, commented that he was not free to develop his own conceptual structure and resorted to a passive approach. The evidence, however, was that this student finally came to view learning from the Open University texts as involving sets of interrelated concepts and he actually performed well ultimately.

Two points from Brew and McCormick's study are relevant to my study. One is the finding that students have different conceptions of learning and knowledge, and that in the lecture they may tend to hold a passive view of learning which sees knowledge as an 'amount' to be 'absorbed', rather like a sponge soaks up water (Brew and McCormick, 1979). Although Brew and McCormick also suggest that students who hold an active view of learning will, in the lecture, be linking ideas to form relationships, the evidence in Chapter 2 strongly suggests that students tend not to learn effectively from lecture materials. It has been found that students tend not to read their lecture notes.

The second point relates to learning from textual materials. Brew and McCormick suggest that textual materials may present learning problems for both active and passive students. However, they were also clear in pointing out that "the Open University course appears not only to have presented students with a task for which their previous experience had not prepared them, but also to have put them in a situation where it was not self-evident what learning strategy needed to be adopted". (p.434) Besides that, the fact that the Open University course was implemented in a mixture of an 'uneasy compromise' consisting of a substantial amount of self-study material (which lacked individual feedback and face-to-face support), and the same number of lectures, also led to problems (Brew and McCormick, 1978).
In the final analysis the authors concluded that despite the difficulties with introducing the course, the staff at the Essex University "were satisfied that an improvement in student learning had resulted from employing it... They have expressed satisfaction that students are exposed to new modes of learning and that they (themselves) are developing self-study material".

6.3.3 The Concept of Developmental Stages as a Framework of Student Learning

It may be inferred from Brew's study and evidence from Smith (1982) that students need to be given the experience to develop the relevant strategy to cope with new learning tasks which are not familiar to them. In this context student learning appears to be seen from a second framework (Gibbs, 1981) in which students move through developmental stages in their thinking and, therefore, to particular commitments in and to their learning. Perry (1970) and Säljö's (1979) studies are pertinent here. Perry describes nine stages of development through which students progress from an extreme 'absolutist' position (where the student sees the world in polar terms of we-right-good versus other-wrong-bad), through 'relativism' to a flexible commitment (where the student perceives diversity of opinion in Position two and accepts diversity and uncertainty in Position three). These three positions form the usual broad variation which can be further subdivided to make nine stages in all. Perry asserts that very few students who entered college had ideas as naive as Position one. When this happened it could be due to what Perry calls temporising (the student delays in some Position for a year, exploring its implications, or explicitly hesitating to take the next step). It was possible that the same phenomena was happening to the group of students at the Essex University who could be described to be in awe of the new learning experience of learning from textual materials. Perry's scheme of intellectual development has implications for the present study, that students new to the experience of learning from IL may demonstrate learning difficulties and hence require a period of normalisation. It is also pertinent that Perry, in his years at Harvard University, has seen the intellectual stage at which students enter the university become more advanced, a phenomenon which he
attributed "to the increasingly relativistic teaching in schools and decreasingly authoritative presentation of knowledge and teaching methods" (Gibbs, 1981).

Like Perry, Säljö (1978) in Sweden also found differences between people with respect to their subjective conceptions of learning which have a functional relationship with the outcome of learning. Säljö found from his interviews that for some of the participants the phenomenon of learning in itself has become an object of reflection ie learning has become thematised, while for others the nature of learning is taken for granted which is more akin to Perry's (1970) earlier stage.

In the 'taken-for-granted' perspective, learning is described in very absolute terms as an essentially reproductive memorising activity where the task of the learner is perceived of as that of 'getting all the facts into your head'. At this perspective people tend to equate knowledge with learning (also in Brew and McCormick, 1978).

In contrast, at certain points in their career as learners, most of the more experienced learners appear to have started to reflect on learning. People in this thematised perspective start to introduce various qualifications and distinctions as they describe their conceptions of learning and study methods, with a qualitative statement such as 'it depends really'. Säljö found that students take three main 'steps' in the development of their reflection about learning.

1. Students becoming aware of the influence of the context in learning about what you should learn and how you should set about it;

2. Students distinguishing between learning 'for life' versus learning in school, the latter of which is seen as becoming stereotyped and routine and confined only to the school boundaries;

3. Students distinguishing between learning and real learning or as between learning and understanding which involves the
abstraction of meaning and is distinguished from rote learning.

When students have developed the perspectives of thematisation, then Säljö speculates they would be better able to cope with learning problems. Learning is then distinguished from real learning or from understanding which involves the abstraction of meaning from learning materials rather than mere reproduction as in rote learning. It is not clear whether Perry and Säljö are suggesting that students' relativistic view on learning develops only chronologically upon maturity over time. Perry's contention that students' intellectual stage tends to advance with decreasing authoritative presentation of knowledge, and teaching methods at the university may have implications for the desirable direction of teaching at schools and tertiary education. I would suggest that students' conceptualisation of learning may be a phenomena that can be 'manipulated' to the student's own advantage, by a systematic process of intervention in the teaching and learning situations in which students are placed in situations where they can, and will, adopt particular learning strategies and study methods.

The argument that I present can perhaps find support from inferences that can be drawn from studies by Wankowski (1973), Wright (1982) and Hudson (1968) which are related to the repercussions of what is known as a 'teacher dependence' syndrome (Wankowski, 1973, p.6). This is a situation in which students are described to be disappointed when the expectations about the role of the teachers are not fulfilled.

Wankowski (1973) in a study of the problems of success and failure of students at Birmingham University, also found that success and failure was linked with students' attitudes to subjects of study and to teachers. He found that achievement in the university correlates with students' reliance on teachers in school. A scale of scores was developed by counting students' spontaneous references about teachers who had had a positive (helpful) or negative (frustrating) influence on the scholastic progress in primary and secondary schools. The teacher reference scores showed a strong trend in extreme populations; they were highest amongst the withdrawals and lowest amongst the first class honours (Wankowski, 1973, p.6).
Hudson (1968) suggests that students' approach to a "task may be related to a basic difference in response to authority". In a study in which students are asked to list the uses of objects, Hudson found that the 'divergers' unlike the 'convergers' were able to produce a large number of inventive answers. However, when students were shown an example of a diverger's answers, convergers also produced divergent types of answers: "the converger, in other words, is not so much the student who cannot think divergently as the one who thinks fluently only when told unambiguously to do so". Hudson suggests that this may indicate a more basic difference in response to authority. It is implicit in Hudson's view that students' perceptions of the learning task is influenced by how they perceive the authority of the teacher. In relation to this Wright (1982, p.25), a University Counsellor at the University of Reading, suggests that "foreign students...do not like to challenge or even question the teacher's authority. Their transition to the concept of self-directed learning is only accomplished by the close and time-consuming support of the academic teacher".

The implications of the last few findings on the present study can be said to be quite significant, because Malaysian students are noted for being 'teacher dependent' and for holding authority in great awe.

6.4 STUDENTS' STUDY METHODS AND VARIABILITY IN LEARNING OUTCOME

Earlier on p. 6:8 Säljö describes one of the three main 'steps' by which students reflect about learning as "students becoming aware of the influence of the context in learning about what you should learn and how you should set about it". Gibbs (1981) suggests that students actively choose to study in the way they do in response to the demands of specific learning tasks. Ramsden (1979) explored the students' perceptions in six Departments at Lancaster University using both questionnaires and semi-structured interviews. In all the Departments students attached extreme importance to staff understanding of their learning requirements and how this influences them to study, and the way they go about studying. Students' "levels of processing"
is also found to be related to their perception of the task "which, in turn, is influenced by their level of interest, personal commitment and previous knowledge" (Ramsden, 1979, p.426).

Snyder (1970) and Becker et al. (1968) also suggest that students learn the requirements of the milieu and react accordingly. Becker found that students' approaches to learning were dominated by the need to achieve high grades in examinations. So students perceived a conflict between learning for understanding and learning for assessment. Ramsden remarks that "this has the unintended consequence of inhibiting rather than facilitating learning, and it is easy to see how one might extend this effect to teaching methods as well".

The distinction between what is perceived to be intellectually desirable and what is actually offered in the teaching milieu (Becker, 1968), pervades as a "hidden curriculum" (Snyder, 1970) at all levels of learning as Snyder says:

"My experience reinforced the belief that from the special case of even one university, cautious generalisations about higher education as a whole are unwarranted. As I examined colleges, universities and secondary schools, I was struck repeatedly with the importance of a hidden curriculum which determined to a great degree the way in which the various participants played the game, read the cues, adapted to their immediate educational circumstances.

(p. xiii)

...A professor may explain at the beginning of the term that he requires knowledge and competence and creativity and originality...but then sets the tasks in such a way that rote memory rather than knowledge is rewarded."

(p. 9)

So also students who are "cue seekers" or "cue deaf" (Miller and Parlett, 1974), "course focus" or "interest focus" (Mathias, 1978 in Gibbs, 1981), and the "syllabus bound" or "syllabus free" (Entwistle, 1976), are exhibiting study strategies which are the result of their perceptions of the learning tasks and learning contexts. Adopting these strategies have implications on the learning approaches that students adopt whether it is 'surface level' or 'deep level'. For example,
'syllabus bound' students are more likely to be oriented towards examinations and the demands of the syllabus and course work, whereas 'syllabus free' students are more likely to be independent in their study. Factual overburdening of the syllabus and examinations have been found to be responsible for students' low level understanding (Entwistle, 1981). Laurillard (1978) suggests that given these individual differences, the practising teacher should cater for such differences. She was, however, doubtful whether these differences are the manifestations of learning styles or a "response to the system". Similarly, Entwistle (1981) questions whether the mismatch between learning and teaching was between students' values and subject matter or between values and styles of teaching.

An aspect of learning which has not been studied extensively is students' study habits. Applying particular study approaches and study methods can be habit forming. However, "the dependence of study habits on contextual factors, such as the nature of the assessment system, the style of teaching and the nature of the subject matter, is still largely an open question" (Laurillard, 1978).

6.5 THE IMPLICATION OF THE RESEARCH FINDINGS ON THE PRESENT STUDY

The research findings which have persistently found that positive learning approaches eg 'deep level processing' can lead to desirable learning outcomes can provide well defined criteria for effective learning. On the other hand, the qualitatively low descriptive categories eg 'surface level processing' can help to identify the weaknesses in the way students tackle their learning tasks. The practice of teaching, however, has often failed to relate teaching to students' styles and approaches to learning (Snyder, 1970; Becker, 1968), so that a disjunction exists between what is perceived to be the desirable aims of higher education and what is the actual reality. Teaching methods and teaching styles do make a difference. It is becoming clear that teaching styles affect students' approaches to learning (Entwistle, 1981).

The present study starts from this premise and tries to look at complementary teaching methods which can realistically serve the needs and learning orientations of different students. Although the idea of a composite learning model of an autonomous, self-organised,
versatile individual who seeks meaning and understanding, appears an unrealistic goal for all students (Hounsell, 1979), teaching practice, nonetheless, should not lose sight of the ideal and plan teaching methods and styles which are versatile not only to accommodate the different learning styles and approaches, but, more importantly, to create teaching situations which can place students in learning situations which will induce them to adopt the more desirable learning strategies. This may be the teacher's ploy to also 'play the game' to counteract students' inclinations 'to play the game' themselves. Hence, it is with deliberateness that the study chooses IL as a basic method for transmitting knowledge which students must acquire through self-reading and contemplation. Together with a component of at least two other teaching methods, the teaching strategy in the study tried to accommodate individual differences in learning approach, although, as can be seen later, this is not the only aim.

The research findings (Laurillard, 1978; Ramsden, 1979) clearly point to contextual influences on students' study approaches and methods which lead to students using different ploys (eg cue seeking) to 'play the game'. The implication of this on the present study is that research into teaching methods cannot be laboratory based divorced and isolated from the natural setting. This further implies that the influences of a range of other factors must be considered when describing the effectiveness or non-effectiveness of particular teaching methods in terms of student learning.

In this context, the research has also alluded to a "teacher dependence syndrome" (Wankowski, 1973) which influences the ways in which students go about their learning. The contention has been made also with reference to foreign students (Wright, 1982). It may be inferred that students accustomed to authority may not just be using ploys to pass examinations, but may have a real need for help to change their conceptualisation of teacher role and of learning. In fact, I may argue that this may have cultural implications which should really be a topic for another research investigation. In any case the contribution of these findings to the present study is that it alerted me to this aspect of learning by foreign students which do not preclude Malaysian students. It also provides one basis for investigating the nature of student learning in the Malaysian context.
The research studies also suggest that students form particular conceptualisations of learning. Although there is a distinction between "learning" and "real learning" (Säljö, 1979), students tend to conceptualise learning as knowledge and not learning as real learning or understanding. It is this conceptualisation of learning that affects students' approach to learning. With a traditional mode of teaching, students may adopt either a deep or surface approach depending on the way they think about learning. While this is a completely acceptable contention, there is also evidence that the onus for using a deep approach lies not with the students themselves. The teaching method and teaching styles adopted can influence whether students adopt a surface or deep approach. The contention I am making in relation to this is that teaching methods do induce teachers to use particular styles of teaching. Although particular teaching styles can very readily be manifested in a method such as a lecture, the argument is that the lecture may not readily present a situation for using styles that will encourage 'deep learning' in students.

Students' conceptualisation of learning is associated with their intellectual developmental stages (Perry, 1970; Säljö, 1979). As I have mentioned on p. 6:7, although Perry and Säljö may be referring to a chronological development, I would suggest that students' learning experiences (just as Bruner suggests that difficult concepts can be taught to children at a younger age from more simplified perspectives) can be enhanced to promote more effective learning. I think it is in the light of this that Hounsell (1979), Gibbs (1981) and Morgan, Taylor and Gibbs (1982) suggest the need for learning to learn. If students can adapt their approach to perceived differences in the tasks and context of learning (Ramsden, 1979; Laurillard, 1979), then it is essential that learning to learn as a strategy is important for students to develop an awareness of their own learning phenomena. To this I would add that being made to study in particular teaching modes which can promote learning for meaning or understanding, is one process of learning to learn. The implications on the present study of the contention is, therefore, quite obvious.
6.6 TEACHING METHOD AND TEACHING STYLES: CLARIFICATION OF CONCEPTS

I have on several occasions mentioned teaching 'method' and teaching 'styles' without defining the terms. Appropriately, this chapter should close with some clarification of the concepts of teaching method and teaching styles as I have used them in my study. Teaching method is used with reference to modes such as the lecture, IL, small group teaching etc., while the term 'teaching styles' is more encompassing to refer to 'open', 'restrictive', 'interactive' or 'responsive' styles. So even in the lecture situation, teachers may adopt an 'interactive' teaching style or confine themselves towards straight presentation of knowledge without much feedback from students. In my study I have described the lecture method as inducing a 'teaching style which tends to be restrictive' in the sense that it restricts the student's personal development (for example, interaction with peers, communicative skills, learning skills, etc.). This is based on evidence from research findings laid out in Chapter 2. On the contrary, I have described IL, together with three other teaching components, to be 'responsive' in the sense that the teaching strategy is geared towards responding, as far as possible, to the individual styles and approaches in learning.

6.7 CONCLUSION

So as not to be considered that I was promoting a teaching strategy that is a mismatch with student learning styles, I conclude that the present study recognises the view that teachers need to provide opportunities for students to learn in a way consistent with their learning styles (Entwistle, 1981), but matching teaching styles with learning styles is not always possible (Hounsell, 1979). So an alternative teaching strategy, as I have earlier suggested, may, therefore, be a viable teaching situation which can be engineered to induce students to apply an effective learning approach and study methods. In this context support can be found in what Smith (1982) says:
"While a prolonged mismatch is clearly undesirable, some educators feel a responsibility to expose learners for short periods to instructors, approaches, environments and methodologies that are not in line with learners' preferences and strengths. Some feel that this will help people to accommodate to situations in which they have no choice but to accommodate (i.e., to develop flexibility); there is evidence that higher levels of learning style flexibility accompany higher achievement levels (Kirby, 1979). Others feel that deliberate mismatching may help to foster creativity in learning and problem solving."

(p. 71)
7.1 INTRODUCTION

In Chapter 5 some reference was made to the methodological stance of the main study. In this chapter I will discuss the philosophical basis for adopting such a stance and then describe in more detail the research methods and techniques used and the contexts of the research.

7.2 THE DILEMMA OF TWO RESEARCH PARADIGMS IN EDUCATIONAL RESEARCH

A fundamental issue in current educational research has been the polarisation between dichotomous research paradigms, or approaches each of which is based on its own distinct philosophical basis and set of assumptions.

Gilbert and Pope (1982) in reviewing the research articles have identified different 'labels' used to describe these two paradigms such as:

<table>
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<tr>
<th>Paradigm 1</th>
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<tr>
<td>Traditional</td>
<td>Non-traditional</td>
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<tr>
<td>Scientific</td>
<td>Artistic</td>
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<tr>
<td>Experimental</td>
<td>Naturalistic</td>
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<td>Reductionist</td>
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<tr>
<td>Prescriptive</td>
<td>Descriptive</td>
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<td>Quantitative</td>
<td>Qualitative</td>
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These labels are seen to be confusing. For example, *experimental* and *scientific* are used interchangeably and in contrast to *naturalistic*. Gilbert and Pope suggest that "naturalistic approaches exist also within the natural sciences, eg astronomy and some studies of evolution" and as such they may also be scientific. *Experimental* they add, should be used to describe a research situation whereby the researcher intervenes in the process and manipulates certain variables. This is opposed to naturalistic in which the researcher attempts to find out what happens in natural settings without setting up a deliberate experiment. Thus experimental should be contrasted with naturalistic.

*Holistic*, on the other hand, is contrasted with *scientific* but Gilbert and Pope argue that "human and social phenomena cannot be reduced to a few isolated variables", so that its study must be done holistically unlike in physical sciences where, perhaps, the components to be studied can be fragmented and studied in isolation using the *reductionist* approach. Logically, holistic should be contrasted with reductionist rather than with scientific or experimental.

Again the distinction is not made clear between the aim to *describe* in naturalistic research and the aim to *prescribe* in experimental research.

"The aim of naturalistic approach is to describe a natural setting as fully as possible (holistically) so that a better understanding of such persons/events can be achieved. This is in contrast to the usual aim of experimental research which seeks to *prescribe* what future interrelations are likely to be between certain variables which have been the focus of the study."

(Gilbert and Pope, 1982)

Quite often the term descriptive is used interchangeably with naturalistic when, more appropriately, it should be used to contrast with prescriptive.

Further confusion can be found in the application of the concepts of *qualitative* and *quantitative*. *Qualitative* has been contrasted with *experimental* and *quantitative* with *descriptive*. It is the case that researchers whose aim is to use a descriptive approach will usually gather data which can be described as qualitative and, similarly, experimental work more often than not...
provides quantitative data. However, it is perfectly feasible for an experimental study to give rise to qualitative as well as quantitative data and the 'descriptive' research worker could gather both types of data. The terms qualitative and quantitative should be restricted to labelling the type of data and not label the paradigm (Gilbert and Pope, 1982). Nonetheless, some researchers eg Rist (1977) has used the terms qualitative and quantitative orientations to describe the two paradigms, thus distinguishing the dichotomy from merely data labelling.

Gilbert and Pope further suggest that a clear distinction must be made between methods and research techniques and their locations within the two paradigms. Experiment is put under Paradigm 1 and case study under Paradigm 2, but it is possible, they suggest, that case studies consist of experimental procedures. The dichotomy then at the methods level is not very clear cut between the two paradigms. Research techniques such as interviews, observation and questionnaires have applications in both paradigms and, therefore, cannot be clearly dichotomised. Researchers who favour statistical analysis are likely to use closed ended questionnaires which can yield quantitative data. Thus, the methods they may use are the survey and/or experimental methods using a reductionist rather than a holistic strategy towards prescriptive aims. Researchers who are 'naturalistically' inclined can use questionnaires and tests to describe particular cases as holistically as possible.

Two further labels which distinguish the paradigms are nomothetic and idiographic. The aim of a nomothetic study is the search for general laws eg what is the 'norm' or 'consensus'. In idiographic studies, a small sample or an individual makes up the 'case' to be studied. Extrapolations to other cases are limited and the aim is not to produce information on 'norms' or 'consensus'. Case studies are idiographic studies. Idiographic studies tend to be holistic, descriptive and naturalistic, whereas nomothetic studies, because of the large number of subjects, tend to reduce the number of aspects studied (reductionist) and seek to prescribe trends (Gilbert and Pope, 1982). I would add that it may not be so much as the reduction of the number of aspects, but rather the scope for delving into those aspects in order to get at deeper 'verstehen' or meaning.
or understanding which can emerge only as a result of immersing oneself in a naturalistic, holistic and descriptive research paradigm.

7.3 THE PHILOSOPHICAL FRAMEWORK OF THE STUDY IN THE CONTEXT OF THE TWO PARADIGMS

My own orientation was originally quite traditional, but I have since my brief encounter with the issues and problems which I have discussed in Chapter 5, shifted my orientation towards the naturalistic paradigm. However, in terms of the methodological approach, I am more eclectic. So within the diagrammatic framework drawn by Gilbert and Pope which is reproduced here (Fig. 7.1), my study can be described to be in Paradigm 2. It is definitely not experimental, nor prescriptive, nor reductionist. The study is located in the natural setting, so that it is naturalistic and looks at situations in the light of their surroundings so that it is holistic. It is descriptive and not prescriptive. My study is principally intended to carry out an innovation in a natural setting and to monitor its impact on student learning within an existing academic structure from the perspectives of teachers and students. This naturally implies having to ground the research in a real situation which looks at the whole research situation. Such a reality-based study which is naturalistic and holistic is intended not to 'test' but to 'understand and document' an innovation. (Parlett, 1974).

Parlett describes such an approach to evaluation as the 'illuminative' approach which reviews the innovation "as it interacts with its context and study unexpected and unintended consequences as well as those that were planned". In further describing the illuminative evaluation, Parlett says that:

"the aims of illuminative evaluation are to study an innovatory programme: how it operates; how it is influenced by the various school (or institution) situations in which it is applied; what those directly concerned regard as its advantages and disadvantages; and how students' intellectual tasks and academic experience are most affected. It aims to discover and document what it is like to be participating in the scheme, whether as teacher or pupil, and, in addition, to discern and discuss the innovation's most significant
Fig. 7.1 Paradigms in Educational Research
(Source: J. Gilbert and M. Poole (1982): Making use of research into teaching and learning, Module C, Course study guide, DPHE, IED, University of Surrey)
features, recurring concomitants, and critical processes."
(Parlett, 1974, p. 15)
( Words in brackets are my own)

The study which is intended to explore or describe the perspectives of the users of the innovation - lecturers and students - calls for both an *idiographic* and a *nomothetic* approach using different methods of research, the case study and survey methods, which Denzin (1978) terms as 'between method triangulation'.

### 7.4 METHODOLOGICAL TRIANGULATION

#### 7.4.1 Basic Feature

The basic feature of between-method triangulation is the combination of two or more different research strategies in the study of the same empirical units. It works on the premise that action research is never static. It evolves new dimensions requiring suitable and varied techniques of investigation. In short it

"involves a complex process of playing each method off against the other so as to maximise the validity of field efforts."

(Denzin, 1978, p. 304)

He further stipulates that

"the flaws of one method are often the strength of another."

Clearly the main concern which is implicit in Denzin's methodological triangulation is for validation and authenticity of the research and research findings. Other researchers have also expressed the value of using different but compatible methods of research for validating research findings (Sheldrake and Berry, 1975; West, 1979; Entwistle and Hounsell, 1979). Rist (1977) says that one orientation (quantitative and qualitative orientations) "is the mirror opposite of the other". Perhaps a strong justification for using methodological triangulation in illuminative research can be found in Entwistle and Hounsell's (1979) contention which says, and I quote:
"The very sensitivity and flexibility which are the essence of illuminative research are also its Achilles' heel. The insights which emerge from qualitative research reports can appear too much the product of the researcher's personal perspective and of the idiosyncrasies of the specific situations examined. If the psychometric analyses impel the research towards over simple generalisations, the 'illuminative' method can also mislead by swamping the researcher in particularities of doubtful general validity. But good qualitative research can, through cross-checking of interpretations and through an awareness of its limitations, provide evidence as strong in its own way as that derived from conventional approaches."

(Entwistle and Hounsell, 1979, p. 61)

7.4.2 Principles of Methodological Triangulation

I will now describe Denzin's (1978) four principles of methodological triangulation which have implications on my own work.

Firstly, "the nature of the research problem and its relevance to a particular method should be assessed." In other words the methods must be tailored to fit the problem at hand, eg survey will be appropriate to sample large populations while more focused research techniques using participation-observation and interviews can be adapted to certain categories of persons, certain events, certain places or certain times.

Secondly, "in designing triangulated investigations the methods that are combined should reduce as much as possible all threats to internal and external validity", eg in the interview situation, the investigator's presence may raise problems of reactivity although the method allows for the direct study of behaviour and perceptions of the interviewee.

Thirdly, "methods must be selected with an eye to their theoretical relevance" and in order "to maximise the theoretical value of their studies investigators must select their strongest methods" or combine them. Hence, on the basis of this principle the survey, for example, would not be
appropriate for a phenomenological research with a small group of subjects. The interview or participation-observation would have more theoretical relevance in this case. In terms of practical relevance, Denzin suggests that sometimes even the strongest method may tend to overlook aspects of a problem. Hence the value of employing a combination of methods that initially seem inappropriate.

Fourthly, "no investigation should be viewed in a static fashion. Researchers must be ready to alter lines of action, change methods, reconceptualise problems and even start over again if necessary." (pp. 303-304)

The underlying philosophy governing the tenets of Denzin's sociological research methods, has an illuminative orientation and fits the philosophical basis of a naturalistic, holistic and an illuminative research paradigm. Within this context the two research methods will now be discussed.

7.4.3 Case Study Method

The study is idiographic in so far as it aims to investigate the perspectives of individuals within a small group of students and lecturers. Such a study calls for a phenomenological approach (Giorgi, 1971), within a case study situation which can enable the individual to express his feelings as a result of his own experiences.

Support for locating a naturalistic research in a case study approach can be found in the assertion of MacDonald and Walker (1978), that a case study method "gives insight into specific instances, events or situations" which portray the participant's experiences as they "relate to their own circumstances, concerns and preferences". Further support for using a case study is also found in the propositions of Adelman, Jenkins and Kemmis (1976) which are summarised in the work of Hodgson (1980). These are:

(a) The case study is strong in reality: as a consequence the reader of a case study is able to employ the same process of judgment used to understand life and social actions around him.
(b) The case study allows generalisations, either about an instance or from an instance to a class.

(c) The case study recognises the complexity and discrepancies of different and alternative viewpoints held by participants.

(d) The case study provides a rich, descriptive data source for other researchers.

(e) The case study occurs in a world of action and may contribute to it (e.g., in a formative evaluation sense).

(f) The case study allows, at its best, the reader to judge its implications for himself.

7.4.4 Survey Method

By using an eclectic approach I can, on the one hand, tap the world views of individuals as well as support these views with empirical evidence from a survey method. Sheldrake and Berry (1975) point out that the often debated issue between the psychometric approach (which they say rests on quantitative data) and the illuminative approach (which is seen to be based on philosophical speculation unverified by any recourse to data itself), is a mistaken polarisation of views. They suggest that both methods are compatible.

I think the problem lies in a misrepresentation of the method of illuminative research as being purely based on intuition, reflection and description. The implications of the methodological process expounded by Parlett (1974) in Stage 1 (Setting up the evaluation) on p. 7:10 is that 'the study will evolve using a different combination of techniques' which, according to my interpretation, does not preclude the use of 'objective' methods of data collection. I am more inclined to suggest that the adherents of the illuminative approach object to a pure psychometric approach, because research findings resulting from such studies have often, in the past, been interpreted purely on the basis of numerical data without recourse to any qualitative view of the world.
7.5 METHODOLOGICAL PROCESS IN ILLUMINATIVE RESEARCH

A methodological triangulation also facilitates a methodological process that conforms to an illuminative, holistic and naturalistic approach which suggests 'openness' in research (Giorgi, 1971), developing through stages towards progressive focusing and interpreting. Parlett (1974) describes five such stages. These are summarised below and the implication of these on my study is appended briefly.

(a) Stage 1: Setting up the evaluation. This involves a general strategy not to 'inspect' a pre-specified set of variables but rather to view the scheme as a working system: its processes and impact. The study will evolve using a different combination of techniques.

(b) Stage 2: Open-ended exploration in which the researcher would want to know how teachers, students and other interested people see the innovation from their respective points of view.

(c) Stage 3: Focused enquiries where certain issues and occurrences and groups of opinion which have emerged in Stage 2 become topics for more sustained and intensive inquiry.

(d) Stage 4: Interpretation: a stage when the investigation enters into a detailed, accurate and sensitive reporting and adds interpretive and explanatory comment.

(e) Stage 5: Reporting the study in which the illuminative evaluator is conscious throughout his investigation of his audience or readership. He will ensure that he addresses the issues that concern the reader.

(pp. 16-17)

The process of the illuminative research that Parlett describes addressed itself to issues which directly concerned head teachers and the London Education Authority officials. My study is not intended to address itself to a particular audience in the official sense, although the general intention is to alert interested educationists to the issues and problems that may arise from the implementation of an innovation in the Malaysian context.
One other implication of these tenets is the suggestion that the study 'will evolve using a different combination of techniques' which, in view of what Gilbert and Pope (1982) suggest, can utilise the quantitative as well as qualitative methods of data collection. This brings me to a discussion of the research techniques used in the study.

7.6 RESEARCH TECHNIQUES

Table 7.1 represents a schedule to show the utilisation of the IIM by the various groups, and the research techniques which were applied in the study. The ticks (✓) indicate the application of the questionnaires, interviews or repertory grid, or all three, on the various groups of students and individual lecturers. Three types of research techniques were used in the study. The diagrammatic representation of the research process in STTI and FEUM is laid out in section 7.8 p. 7:25.

By using semi-structured interviews and the repertory grid techniques, I can explore the perspectives of individuals in a naturalistic and holistic manner because these are research tools which are powerful techniques to use. Also by using questionnaires which are closed and open-ended, I can have recourse to quantitative data from a larger population.

The value of using a combination of techniques has been recognised by other researchers who found that there may be limitations in a study which uses only one method of research (Entwistle, 1981) and (Laurillard, 1978). Laurillard, commenting on the implications of her study for further research, made the following observation and suggestion:

"Interviews have provided an initial way of looking at this, (ie learning process being investigated) but the method has a higher wastage rate as it is often difficult to get students to describe their perceptions of learning in sufficient detail. More objective methods are also desirable if they can overcome the problems of interpretation by the researcher, and inaccurate perceptions by the students."

(p. 200)
(within brackets my own words)
<table>
<thead>
<tr>
<th>Institution &amp; Students</th>
<th>Group</th>
<th>ILM used</th>
<th>Language of ILM</th>
<th>ILM Feedback Questionnaire</th>
<th>Q2 (SPIL)</th>
<th>Q1 (BII)</th>
<th>Q3 (MILM)</th>
<th>Q4 (ILGIT)</th>
<th>Indiv. Interview</th>
<th>Group Interview</th>
<th>Repertory Grid</th>
<th>Indiv. Interview after IL</th>
<th>Repertory Grid</th>
</tr>
</thead>
<tbody>
<tr>
<td>STTI 1 (Case Group)</td>
<td>05</td>
<td>ABCDEF &amp; G</td>
<td>English</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>STTI 2 (3 groups)</td>
<td>06</td>
<td>ABC D to G (optional)</td>
<td>Malay</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>07</td>
<td>Malay</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>English</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td></td>
</tr>
<tr>
<td>FEUM 1 (2 groups)</td>
<td>09</td>
<td>ABC</td>
<td>Malay</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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</tr>
<tr>
<td>10</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>FEUM 2 (4 groups)</td>
<td>11</td>
<td>ABC</td>
<td>Malay</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td>✓</td>
</tr>
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<td>12</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Malay</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td></td>
</tr>
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<td>14</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Lecturers who volunteered but could not implement IL fully</td>
<td>5 Lecturers</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

Table 7.1 Schedule Showing The Utilisation Of ILM And The Application Of Research Techniques

Students & lecturers who responded to questionnaires & are interviewed

✓
I had originally intended to also use 'observations' of actual practice teaching and 'video recordings' of group interaction sessions, but these could not be implemented. Firstly, my students in the case study were posted to remote areas out of Kuala Lumpur and secondly, facilities and technical help for making video recordings were not available.

I shall now briefly discuss the theoretical basis for using these techniques. The procedure by which the research techniques were used for gathering data and the data analysis are discussed in the respective chapters (Chapters 8 - 11).

7.6.1 Interview

Using a phenomenological approach in a case study situation as is the concern of the major part of my research, implies exploration into the personal views of the individuals within the case study, both of lecturers and students. Consequently, using a semi-structured interview which is generally focussed to delineate specific aspects is a useful technique. The interview technique has been said to be useful at the preliminary stage of hypothesis or problem formulation, important at the intermediate level to monitor the course of the research, and at the post research level for reaffirmation of findings (Cannell and Kahn, 1968). It also has the added advantage of enabling the researcher to illuminate quantitative data (Cox, 1976). In the study I have interviewed students individually as well as in groups of four or five using stimulated recall. These are elaborated in the relevant chapters.

7.6.2 Repertory Grid

Learning, up till recently, had been generally seen as a product that comes out of a 'black box' as a result of input from teaching. It had been assumed that learning is the acquisition of knowledge which is transmitted through teaching and the student's role in this teaching and learning situation is as the passive receiver of information rather than the active participant.

In recent years, educationists are beginning to be more concerned as to how the individual processes knowledge in the 'black box'. Knowledge is seen as being produced by the construction and
interpretation by the individual of his own experiences and his perception of the environment. The teacher's role is no longer seen to be purely a transmitter of knowledge but of an arbiter and catalyst of learning. The teaching and learning situation is seen as interactions between teachers and students and between students and students. There is a greater concern that recognition should be given to the perspectives of the people in classroom interaction.

The study of the perspectives of individuals and of social relationships is central to George Kelly's work (1955) on constructive alternativism which is becoming increasingly applied to the study of education (Pope, 1981). 'Constructive alternativism' refers to the belief that everything we perceive in life is open to as many varieties of construction or interpretation as man has the ingenuity to devise. It stems from the combination of two simple ideas. First, that man can only be truly understood against the background of his time on earth or, as Kelly says, when he is "viewed in the perspective of the centuries rather than in the flicker of passing moments" and, secondly, that each man construes the universe, by which Kelly means a course of events, in a very personal way.

The notion of the importance of the perspectives of the individual is emphasised by Pope (1979):

"What is relevant to the person is of importance and for education to be a joint venture between teacher and learner it is essential that each has some awareness of the other's personal constructs. The perspective of the student as well as that of the teacher must be considered although, traditionally, learning has been defined mainly from the latter's perspective." (p. 6)

The 'perspective of the personal' is central to George Kelly's work on Personal Construct theory, and the method he originated for exploring these 'perspectives of the personal' is the repertory grid which is described by Fransella and Bannister (1977) as

"an attempt to stand in the others' shoes to see their world as they see it, to understand their situation, their concerns."
As my concern is with teaching and learning, an exploration into the personal perspectives of lecturers and students involved in the teaching and learning can throw light on the kinds of interaction that exist among lecturers and students. As Pope (1979) suggests:

"Externalising areas of similarity and dissimilarity between a tutor's grid and that of the student gives a framework for negotiation of differences between tutor's and student's perspectives. This leads to a greater awareness and understanding of the other's point of view."

(p. 9)

The repertory grid technique is not a test but a methodology used to investigate constructs about people, inanimate objects and even abstract ideas (Pope and Keen, 1981). By 'construing' Kelly meant 'placing an interpretation'. This leads to Bannister and Mair's (1968) definition, that a construct is a way in which some things are interpreted as being alike and at the same time different from other things. Hence, for example, black-white is a construct, and each construct discriminates between two poles eg black at one end and white at the other. The constructs are personal in that each individual imposes his own interpretation upon the universe and construes it in his own way. Kelly's theory is also governed by eleven important corollaries which are appended (Appendix D1). Working within this theoretical framework and by entering into a process of negotiation and triadic elicitation, the researcher is helping the individual to construe events and situations which are within their realm of experience. The processes involved in the repertory grid technique and its analysis are discussed in Chapter 11.

7.6.3 Questionnaire

Altogether four questionnaires were used in the main study, each for a different purpose. These are discussed in the relevant chapters. They were designed either for the purpose of exploration at the initial stage; for monitoring at the intermediate or final stage of an evaluation, or for extending the findings from an idiographic research paradigm in terms of their generalisability to a larger population. An example of the latter is Questionnaire 4 (Q4.ILGIT) which was developed from protocols that evolved from the group interviews following all group interaction sessions during the research.
Each of the questionnaires was semi-structured and instead of only allowing space for open responses at the very end of the questionnaire as is usually done, the respondents in the study were invited to supply comments and/or reasons in spaces provided for every question asked. This was found to be very advantageous because it gave shy students who were reluctant to open up at interviews to be more spontaneous about airing their views. These open responses were quite substantial and, in fact, threw up significant issues which would otherwise not have been detected in a closed questionnaire, or not appear significant in interviews because of the smaller number of cases. The frequency with which such responses appeared in the questionnaire makes them worthy of mention and further investigation. I was able, consequently in some instances to direct the interviews to focus more deeply into some of these evolving issues. The process of analysing the open responses was obviously quite complex and raises a fundamental question about the classification of words and phrases without distorting the meaning. This has been done by a process of categorisations which is discussed in Chapter 8.

7.7 DESCRIPTION OF THE RESEARCH CONTEXTS

7.7.1 Introduction

Fig. 7.2 represents three investigations which show the location of the study in two research contexts (STTI and FEUM). The case study is represented by Investigation I. There were two main reasons for extending the study to Investigations II and III.

1. In evaluating teaching methods it is also important to view the perspectives of teachers. Hence it was necessary to extend the study to several other groups where IL was personally supervised by the respective lecturers of those groups in STTI and FEUM.

2. The study being grounded in a case study approach method may have limited generalisability. Extending the research to a larger population can provide more breadth (Cartwright, 1966).
Specialist Teacher Training Institute (STTI)

No of students: 25
Lecturer: (Researcher)
Teaching methods used: IL, tutorials, lectures & group interaction tasks (GIT)
IL materials used: Modules A to G in English language
Research techniques used: Questionnaires, interviews, repertory grids

INVESTIGATION I

Specialist Teacher Training Institute (STTI)

No of students: 77
No of lecturers: 3
Teaching methods used: IL, tutorials & normal lectures
IL materials used: Modules A to C in Malay Language (Modules D to 6 are optional)
Research techniques used: Questionnaire, interviews

INVESTIGATION II

The Faculty of Education, University of Malaya (FEUM)

No of students: 123
No of lecturers: (actively involved = 6)
(partly involved = 5)
IL materials used: Modules A to G in Malay Language
Research techniques used: Questionnaire, interviews

INVESTIGATION III

Fig. 7.2: The Research Contexts

143
I will now describe the two research contexts and within each description locate the case study group and those other groups which I shall label 'subsidiary groups'.

7.7.2 STTI (Specialist Teacher Training Institution, Kuala Lumpur) or MPIK

STTI was the first institution of its kind set up in 1959 in Kuala Lumpur for the purpose of providing specialist training for inservice teachers. The label STTI has now become a misnomer because the Institution also now provides basic training courses for school leavers. It is with this latter group of students that my study is concerned.

The 1980-81 academic session trained the last batch of students in a two-year training programme. 1980-81 also welcomed the first batch of new students to a new three-year teacher training programme. My study was with four batches of students who were in the final year of their two-year course.

The new three-year structure has important implications for the implementation of innovative teaching within teacher training at college levels, because in the new structure there is flexibility in the timetable showing several empty slots for student independent study (Appendices D2a and D2b). I was informed that this was partly to accommodate 'modular teaching' which the teacher training division of the Ministry of Education was then in the process of planning. They were also in the process of piloting the instructional materials. The transformation of the old to the new structure is illustrated in Fig. 7.3(a) and Fig. 7.3(b) overleaf. It can be seen from these figures, and also from the two timetables under the old and the new structure (Appendices D2(a) and D2(b)) that IL was tried out in the study within the constraints of a cramped curriculum structure and timetable. The findings and their interpretations have therefore to be studied in the light of this limitation.

Teachers at the basic training level are trained to teach lower secondary and primary school children. The groups of students that I have selected for inclusion in the study were students preparing to teach lower secondary schools. Under the old structure the students were divided into groups according to their subject options. The composition of the groups in terms of subject options underwent a change in the new structure. The latter, I feel, need
Year | Term | Weeks | Months |
--- | --- | --- | --- |
1 | I | Jan 1980 | | |
| II | 30 | May | | |
| III | | Aug | | |
2 | I | Jan 1981 | | |
| II | 30 | Apr* | | |
| III | | May | | |
| | | Aug | | |
| | | Nov | | |
6 | | Jan 1982 | | |
Placements in schools:
3 months probation & final assessment of TP

Notes: L = Lectures
P = Pestarama
TP = Teaching Practice
E = Examination

Fig. 7.3(a) Old Academic Structure
(STTI)

Fig. 7.3(b) New Academic Structure
(STTI)
Fig. 7.3(a) and Fig 7.3(b) continued:

Notes: 1. The new structure comprises 83 weeks instead of 60 weeks of the old structure.

2. The commencement of year 1 is in May in the new structure, but was in January in the old structure. (I came on the scene at the end of April 1981 at * for my first introduction to the students and to administer a questionnaire to elicit some background information. The main part of the research was conducted between May - November 1981.

3. Under the new structure students received 2 stages of TP supervision. One at ** for 4 weeks and another at A for 10 weeks. In the old structure they also received the same first 4 weeks supervision. Then at the end of term after their final theory exams, they were posted to schools all over the country for a probation period of 3 months.

4. Posting in schools for students in the 3 year structure will not be till they are full pledged teachers and not, as in the old structure, as probationers.
not concern this study. It is, however, useful to demonstrate the process of selecting the groups for inclusion in the study in the old structure.

7.7.2.1 Selection of case study group and three subsidiary groups in STTI (See Fig. 7.2 p.7:17)

Table 7.2: represents twelve student groupings under the old structure according to their subject options. For each one of these groups Education was a compulsory core course. Note that I had been advised by the Head of the Education Department in STTI to select four groups - two groups whose options are Health and Physical Education, one group whose options are Malay Language and Art, and another group whose options are English and Art (indicated by * in Table 7.2). These groups were comparable in terms of academic achievement, whereas the Mathematics and Science students tended to be superior academically to students in the other groups, and the Domestic Science groups were dominated mainly by female students. So, in terms of sampling, these four groups provided a more balanced population between male and female in terms of academic achievements and, even from my observation, in terms of racial composition.

<table>
<thead>
<tr>
<th>NO. OF GROUPS</th>
<th>OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher preparation for secondary schools</td>
<td>* 2 Health &amp; Physical Education</td>
</tr>
<tr>
<td></td>
<td>2 Domestic Science</td>
</tr>
<tr>
<td></td>
<td>2 Mathematics &amp; Science</td>
</tr>
<tr>
<td></td>
<td>* 1 Malay Language &amp; Art</td>
</tr>
<tr>
<td></td>
<td>* 1 English Language &amp; Art</td>
</tr>
<tr>
<td>Teacher preparation for primary schools</td>
<td>2 Music</td>
</tr>
<tr>
<td></td>
<td>2 English</td>
</tr>
<tr>
<td>Total groups</td>
<td>12</td>
</tr>
</tbody>
</table>

Table 7.2: Groups Of Students In STTI In 1980-81 (old structure) According To Options
The case study consisted of one group of twenty-five students whose options were English and Art, (this Case Group) is described further in section 7.7.2.2. Each of the other three groups consisted of approximately twenty-five to thirty students. Each group of students received instruction in their respective classroom, except when they were required to attend what they call 'mass'lectures in some core subjects such as Moral and Religion. In this case three or four classes assembled together in a hall for a lecture.

Organising the study using IL around smaller units of classrooms appear to have some merits and implications for using IL in the present educational set up in the institution, where the intention is to integrate IL without upsetting this set up and to utilise the lecture contact hours more meaningfully through tutorials and small group interaction tasks.

All students were required to do courses in Education such as Pedagogy, Psychology, Sociology and Philosophy, all of which come under the perview of the Division for Educational Studies. Fig. 7.4 shows the academic set up of STTI in terms of the various departments and Fig. 7.5 shows the breakdown of Pedagogy into its specific components. I was, myself, involved within the research context as I taught one of the components in Pedagogy (ie on assessment discussed in Chapter 4) to the Case Group which I shall now describe briefly. This component is identified by the boxed area in Fig. 7.5.

7.7.2.2 Description of the Case Study Group

The Case Study Group located earlier consisted of twenty-five students whose sex and academic compositions are presented in Tables 7.3 and 7.4. Table 7.5 (Appendix D3) represents the description of each individual in the case study in terms of their sex differences and academic achievements.

<table>
<thead>
<tr>
<th>Sex</th>
<th>Male</th>
<th>Female</th>
<th>Total number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11</td>
<td>14</td>
<td>25</td>
</tr>
</tbody>
</table>

Table 7.3: Composition of Case Group by Sex
Fig. 7.4 Institutional Academic Structure of STTI 1980-81

EDUCATION

HEAD OF DEPARTMENT

Micro Teaching Pedagogy Psychology Moral Religion Sociology Philosophy

Management of classrooms (Year 1)
Methods & techniques of teaching (Year 1)
Teacher attributes (Year 1)
Orientation to practical teaching (Year 1)
**Assessment** (Year 2)
Guidance & counselling (Year 2)

Note: *Research context

Fig. 7.5 Departmental Academic Structure - Education (STTI) 1981

Note: *Research context
Table 7.4: Composition Of Case Group By Academic Achievements

The process of my interaction with the Case Group is reflected in Chapter 9. Having placed the case study in perspective within STTI, the next section describes the Faculty of Education, University of Malaya (FEUM).

7.7.3 FEUM Faculty of Education, University of Malaya

The study in FEUM is represented by Investigation III in Fig. 7.2 p. 7.17. The primary aim of extending the study to FEUM is to expose more lecturers to IL. The best way to do this was to involve them on a voluntary basis in the research project and then to interview them. Locating the research in two different institutions may also perhaps evolve some unexpected outcomes in terms of the affect of IL both on the lecturers and the students in the two different institutions which may be worthwhile not to ignore.

The Faculty of Education conducts a one-year Diploma Education (DipEd) course and also a Masters in Education course. I shall be concerned only with the former. Students coming into the
FEUM are graduates who may or may not have teaching experience. Generally, very few entrants into the faculty have had any experience in teaching. The annual enrolment at the FEUM is about 600. These are normally divided into groups according to their main 'Methods' option eg Mathematics. Each student is also obliged to train for a second Method. Whatever their second Methods is, the students are identified in groups in terms of their first Method. Each group is supervised and tutored by their respective mentors. Altogether in the 1980-81 session there were eleven Methods options and approximately thirty-six mentors. Table 7.6 represents the Methods and the number of lecturers responsible for the conduct of the various tutorials in the Methods groups. The number of lecturers who volunteered to use the ILM are also shown in the Table, although in the final event only seven lecturers actually used the three modules in the Malay language fully. Nonetheless, all eleven of them were interviewed. Six groups of students used the ILM within the Methods courses during May 1981 to the end of July 1981. This is reflected in Investigation III, Fig. 7.2. The diagram in Fig. 7.6 shows the Dip Ed structure for the session 1980-81 and the location of the study within this programme.

During teaching practice I visited schools in and around Kuala Lumpur to interview twenty DipEd students. The interviews were recorded but they were not transcribed verbatim. However, I listened to them several times over and noted recurrent themes in the conversations. Where I felt it was pertinent to illuminate an idea or theme I transcribed only these relevant quotes.

Further discussions of the procedure for data collection and analysis and the results of my interviews with the lecturers are described in Chapter 10.

7.8 THE RESEARCH PROCESS AT STTI AND FEUM - A Diagrammatic Representation.

Fig. 7.7(a) and Fig. 7.7(b) illustrate the process and conduct of the research in terms of the time schedule, the teaching methods used (ie the interventions) and the research techniques applied in the two contexts of the study. The diagrams incorporate and summarise the main aspects of the research which have previously been discussed. These aspects or features will therefore not be explained further.
<table>
<thead>
<tr>
<th>Methods</th>
<th>No. of Lecturers</th>
<th>No. of lecturers who volunteered &amp; were interviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malay Literature</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Malay Language</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>TESL®</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Physics</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Chemistry</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Biology</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Economics/Commerce</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Geography</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>History</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Civics</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>36</strong></td>
<td><strong>11</strong></td>
</tr>
</tbody>
</table>

Notes:  * The numbers reflect those lecturers who volunteered to use the ILM. Not all may use the ILM fully, but everyone was interviewed.

** The same lecturer ran Methods courses for Civics and Geography.

* The TESL group initially requested to use the modules on Assessment, but later owing to a lack in coordination and printing difficulties, the groups were dropped from the study.

Table 7.6: Methods Courses At FEUM And The Number Of Lecturers Who Participated In The Study
**DIP. EDUCATION PROGRAMME SESSION 1981/82**

**Term 1**
- 4.5.1981
  - Research intervention:
    - 7 lecturers used 3 modules
  - Lecturers administer Q2.SPIL
- 1.8.1981
  - Teaching Practice
- 17.8.1981
  - Interview 20 students
- 3.10.1981
  - Teaching Practice
- 19.10.1981
  - Interview Lecturers
  - 10 weeks

**Term 11**
- 2 Core courses
- 2 Methods courses
- 1 Education course
- Physical & Co-Curricula Activities

**Term III**
- 1 Core course
- 4 Options
  - Sociology compulsory

---

**January & February 1982**
- Extended Teaching Practice if required

---

*Fig. 7.6* Dip.Ed. Programme 1980/81 And The Location Of The Study

153
CASE STUDY GROUP

1981
March 30

April 10
First Term-Break II April - 3 May

May 4
TERM 2
Introduction

11
INTRODUCTION WITH IL (Mod. A, B, C)
TUTORIALS IN PLACE OF
LECTURE TIMES

18
LECTURE

25
Lecture on Quantitative
methods

June 1
RESEARCH PROCEDURE
(a) Administration of
Questionnaire 2
(b) Interviewing
about learning

8
INTRODUCTION WITH IL (Mod. D, E, F, G)
SMALL GROUP TEACHING

15
LECTURE

22
Lecture on Quantitative
methods

29
SECOND TERM BREAK

July 6
TERM 3

13
TERM ENDS End of course + placement in schools
in January 1982

Aug 24

Sept 7

22

29

Oct 5

17

19

26
Examination Weeks

Nov 2

1982
Jan

Place ment in schools all over Malaysia

Feb

March

Interviews with
FEUM students
(17 Aug - 3 Oct)

INTerviews with
STTI LECTURERS

REPERTORY GRID
(students)

REPERTORY GRID
(lecturers)

OBSERVATIONS -
IN CLASSROOMS
(Planned for but not implemented
because it was not viable)

Fig. 7.7(a) A Time Schedule To Show The Research Process At STTI And FEUM

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Fig. 7.7(b): A Time Schedule to Show the Research Process at STTI and FEUM (Subsidiary Groups)
CHAPTER 8 THE IMPACT OF IL AND LECTURING ON STUDENT LEARNING: STUDENTS' PERSPECTIVES

8.1 INTRODUCTION

In Chapter 7 the point was made that an aim of the study is to evaluate IL as a method of teaching within an existing academic structure from the perspectives of its potential direct users - students and lecturers - within the institutions in which the innovation is to be tried or used. This precludes the perception of educational administrators and outside agencies which is outside the limited scope of this study. More specifically, the study aims to look at IL in terms of its viability within a Malaysian context and its effectiveness compared to the lecture in terms of student learning.

To be deemed relevant and applicable, the method has to be assessed by its users within the real setting because only in a reality-based situation can students and lecturers discern issues which may be critical to the implementation of the innovation, Parlett, (1974). The lecturers' perspectives of IL and the lecture is the subject of Chapter 10. This chapter is concerned with the students' views of the two modes of teaching.

There are three parts to this chapter.

Part I reports the data related to students' perceptions of the important facets of IL and the lecture and their impact on student learning. The source of data was the questionnaire which had closed and open responses and the aim is to identify issues related to student learning which may reflect the main concerns of the majority of students. These issues are then further examined qualitatively in Part II to put the quantitative results in better perspective.
Part II examines and interprets the results in Part I in greater depth using the open responses in the questionnaire and where appropriate and necessary verbatim quotes from interviews with students. Once the perspectives have been drawn, tentative conclusions can then be arrived at.

Part III focuses on the researcher's interpretation of the quantitative data in the light of evidence produced by some qualitative data. The results, being those of the entire population in the study, can only be regarded as 'generalities'. Can such generalities have demonstrable value towards understanding student learning in a particular context? Part III will look at this in the context of a case study where the two modes of teaching were studied more closely. The case study, rather than building on the interpreter's view, will examine the impact of an innovation vis-à-vis the lecture from the practitioners' own point of view. Consequently, "the research will start from the language of description of natural observers" (Walker, 1974).

8.2 PROCEDURE FOR DATA COLLECTION AND ANALYSIS OF QUESTIONNAIRE DATA

A questionnaire (Q.2 SPIL) was administered to all 225 students to elicit the students' reactions to IL. I personally administered the questionnaire to my group of 25 students. I explained what each question demanded of them. This was for the benefit of those students whose English was relatively weak. As far as I know, I have also asked the other lecturers to do the same with their own groups of students whom they considered required further clarification of the questions.

The present section describes the process by which I analysed the questionnaire data.

In Questionnaire 2 (SPIL) Appendix E1 the closed questions were analysed by computer using SPSS (Statistical Package for the Social Sciences).

The open responses went through an iterative process of categorisations and recategorisations and cross validation which is discussed below. In analysing the open responses I was guided by certain principles suggested by Lazarsfeld and Barton documented in Bulmer (1979). The open responses were analysed in four main stages:

Stage 1: In the first stage the large number of open responses to a question were classified into smaller groups - each more or less alike in relation to an idea or meaning - without premature closure. The process was repeated for part of the open responses to nine of
the twenty-three questions. Two other persons studied and cross-validated these categorisations. The remaining questions in the questionnaire were either in the form of rating scales or open ended.

**Stage II:** As the process in Stage I continued, a consistent pattern of categories began to emerge. Some of the categories identified in Stage I were found to overlap. They were also found to be related to major common ideas or concerns. Hence in Stage II I systematised the categorisations identified in Stage I into broad categories and subcategories within them. These broad categories were again cross-validated by the same two persons in Stage I.

**Stage III:** In Stage III I used these categories and subcategories (Appendix E2) to categorise the remaining open responses which have not been categorised. Three other persons, other than the two persons in Stages I and II, cross-validated my categorisations using the categories listed in Appendix E2. Each person cross-validated the responses of three questions and they were given clear instructions on the procedure for categorising the responses (Appendix E3). Then the two sets of categorisations for each question were compared and the level of agreement calculated by means of percentages. Where there was a wide margin of disagreement, a third person was asked to judge the placement of responses on which disagreement had occurred. The percentage level of agreement ranges between about 76% to 98%. Table 8.1 in Appendix E4 represents the degree of agreement.

**Stage IV:** The results are presented in the form of tables (Table 8.8(a) and (b)) p.8:46-p.8:49 which show most clearly the distribution of responses into the various categories. The use of statistical analysis in this case is inappropriate. Nonetheless, a simple 'eye-ball' test is adequate to indicate where most of the distributions lie. These distributions are discussed in section 8.6., p. 8:44.

The main concern throughout the process of analysing the open responses has been to form categories which Lazarsfeld (in Bulmer, 1979) suggests are both exhaustive and mutually exclusive. Exhaustive implies that the categorisations should cover the full range of the data and mutual exclusiveness means that there should be one, and only one place to put an item in a given classification. While this is desirable, Lazarsfeld also suggests that in the case where the researcher may face intractability of the content, the categories should be adapted to the material and problem being studied. I have
found it necessary to do this in my study. Often, I found a response that may fall in one dimension or another within the main category or subcategories. When such overlapping occurred, I tried to enter the student's frame of reference and make an intuitive judgment as to the intended meaning of the response. For example, the following student's remark:

This way we can remember what is learned. If we do not understand we can read as many times. Can digest the contents more effectively.

(07 12 1 2) (T)

seems to be making a direct inference on his study method, but to me it was explicit that he was making reference to the instructional materials, because he was responding to a question which related to 'content'. Clearly, in a response like this it is also implicit that he was concerned with his learning. This response was categorised under main category II, Content II and under subcategory (c) which reads 'enables reading in depth'. (Please see Appendix E2 for full listing of categories.)

8.3 PART I: REPORTING THE RESULTS FROM SPSS ANALYSIS

8.3.1 Introduction

The facets of IL such as self pacing, overview, objectives, activities etc. and the students' reactions to these have been described in Chapter 4.

This part of the chapter is concerned with the way students view these facets as they affect their learning. Some of the more important issues raised in the questionnaire related to questions such as:
- how the students perceived IL and the lecture in terms of the acquisition of knowledge, their understanding and retention;
- how the students perceived IL and the lecture in the way these affect their study approach and study habits. They were asked to comment on issues such as:
  - their efficiency in study,
  - their mode of study eg whether they preferred reading or listening or both,
the amount of effort they put into their study,
their preference to work individually or in groups,
whether or not they 'piled up' work;
whether they preferred to learn by IL or the lecture.

8.3.2 Summary of the Results
The results of nine of the questions are presented in a
histogram Fig. 8.1. Table 8.2 breaks down these results according to
the different groups in the study. The responses to the open ended
questions and rating scales are presented in separate tables. On the
basis of these, the following summaries are made of the findings.

1. Knowledge acquisition, understanding and retention
   (a) On the whole a higher percentage of students perceived IL to be
   more effective for knowledge acquisition and retention (56%, 40%),
   but in terms of understanding, the lecture was perceived to be
   more effective (54%, 40%). However, there was distinct contrast
   in the perception of students in groups 05 and 06 at STTI.
   More students in group 06 than group 05 perceived that the
   lecture could cover more knowledge in the lecture (63.3%, 28%),
   and that they could understand (96.7%, 52%), and retain the
   subject matter better by the lecture method (66.7%, 24%) (Table 8.2).
   (b) More students in STTI compared to students in FEUM perceived
   that they could understand the subject matter better in the
   lecture (64%, 35% derived from Table 8.2).
   (c) Group 06 was consistent throughout in perceiving the lecture to
   be more effective in terms of the acquisition of knowledge,
   understanding and retention (Table 8.2).

2. Study methods
   (a) It was statistically significant that on the whole the students
   perceived that they worked harder in IL than in the lecture
   (71%, 23%) (Fig. 8.1), and also that they worked more efficiently
   (66%, 28%) (Fig. 8.1). In terms of working efficiently a marked
   contrast was evident between the responses of group 06 and
   group 05. A higher proportion of students in group 06 (63.3%,
   24%) (Table 8.2) perceived that they worked more efficiently
   in the lecture.
   (b) It was statistically significant that the students preferred to
   work in groups than on their own, (56%, 26%) (Table 8.3(a)).
### Figure 8.1
Student Responses To 9 Questions Relating To Student Learning From IL And The Lecture

<table>
<thead>
<tr>
<th>Question</th>
<th>Key:</th>
<th>Lecture</th>
<th>Individualised Learning</th>
<th>Question No. in Questionnaire 2 (SPIL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q23 Choice of method</td>
<td></td>
<td>94 (42%)</td>
<td>100 (44%)</td>
<td>Q</td>
</tr>
<tr>
<td>Q21 Reading or listening</td>
<td></td>
<td>63 (28%)</td>
<td>64 (28%)</td>
<td>21</td>
</tr>
<tr>
<td>Q8 Contact with lecturer</td>
<td></td>
<td>87 (39%)</td>
<td>124 (55%)**</td>
<td>8</td>
</tr>
<tr>
<td>Q7 Interesting</td>
<td></td>
<td>81 (36%)</td>
<td>120 (53%)**</td>
<td>7</td>
</tr>
<tr>
<td>Q6 Work efficiency</td>
<td></td>
<td>64 (28%)</td>
<td>149 (66%)***</td>
<td>6</td>
</tr>
<tr>
<td>Q5 Work harder</td>
<td></td>
<td>52 (23%)</td>
<td>160 (71%)***</td>
<td>5</td>
</tr>
<tr>
<td>Q4 Retention</td>
<td></td>
<td>90 (40%)</td>
<td>122 (54%)*</td>
<td>4</td>
</tr>
<tr>
<td>Q3 Further reading</td>
<td></td>
<td>90 (40%)</td>
<td>11 (52%)</td>
<td>3</td>
</tr>
<tr>
<td>Q2 Understanding</td>
<td></td>
<td>91 (40%)</td>
<td>121 (54%)*</td>
<td>2</td>
</tr>
<tr>
<td>Q1 Knowledge</td>
<td></td>
<td>90 (40%)</td>
<td>126 (56%)*</td>
<td>1</td>
</tr>
</tbody>
</table>

Key:
- Lecture
- Individualised Learning

Legend:
- * $(x^2)p<0.05$
- ** $(x^2)p<0.01$
- *** $(x^2)p<0.001$
<table>
<thead>
<tr>
<th>GROUPS OF STUDENTS</th>
<th>KNOWLEDGE Q.1</th>
<th>UNDERSTANDING Q.2</th>
<th>RETENTION Q.4</th>
<th>WORK HARDER Q.5</th>
<th>WORK EFFICIENTLY Q.6</th>
<th>INTERESTING Q.7</th>
<th>CONTACT WITH LECTURERS Q.8</th>
<th>READING OR LISTENING Q.21</th>
<th>CHOICE OF METHOD Q.23</th>
</tr>
</thead>
<tbody>
<tr>
<td>STII 05</td>
<td>17 68.0</td>
<td>7 28.0</td>
<td>11 44.0</td>
<td>13 52.0</td>
<td>17 68.0</td>
<td>6 24.0</td>
<td>14 56.0</td>
<td>10 40.0</td>
<td>15 60.0</td>
</tr>
<tr>
<td>STII 06</td>
<td>11 36.7</td>
<td>19 63.3</td>
<td>1 35.0</td>
<td>29 96.7</td>
<td>10 33.3</td>
<td>20 66.7</td>
<td>23 76.7</td>
<td>6 20.0</td>
<td>11 36.7</td>
</tr>
<tr>
<td>STII 08</td>
<td>13 46.4</td>
<td>14 50</td>
<td>5 17.9</td>
<td>22 78.6</td>
<td>11 39.3</td>
<td>15 53.6</td>
<td>24 85.7</td>
<td>3 10.7</td>
<td>19 67.7</td>
</tr>
<tr>
<td>Femi 09</td>
<td>7 43.8</td>
<td>6 37.5</td>
<td>12 75.0</td>
<td>1 6.3</td>
<td>11 68.8</td>
<td>2 12.5</td>
<td>10 62.5</td>
<td>3 18.8</td>
<td>11 68.8</td>
</tr>
<tr>
<td>Femi 10</td>
<td>11 45.5</td>
<td>10 45.5</td>
<td>9 40.9</td>
<td>10 45.5</td>
<td>10 45.5</td>
<td>9 40.9</td>
<td>12 54.5</td>
<td>9 40.9</td>
<td>6 27.3</td>
</tr>
<tr>
<td>Femi 11</td>
<td>14 70.0</td>
<td>6 30.0</td>
<td>14 70.0</td>
<td>6 30.0</td>
<td>13 65.0</td>
<td>6 30.0</td>
<td>15 75.0</td>
<td>4 20.0</td>
<td>14 70.0</td>
</tr>
<tr>
<td>Femi 12</td>
<td>17 70.8</td>
<td>6 25.0</td>
<td>15 62.5</td>
<td>8 33.3</td>
<td>19 79.2</td>
<td>4 16.7</td>
<td>20 83.3</td>
<td>4 16.7</td>
<td>22 91.7</td>
</tr>
<tr>
<td>Femi 13</td>
<td>16 69.6</td>
<td>7 30.4</td>
<td>9 39.2</td>
<td>12 52.2</td>
<td>16 69.6</td>
<td>6 26.0</td>
<td>19 82.6</td>
<td>2 8.7</td>
<td>18 78.3</td>
</tr>
<tr>
<td>Femi 14</td>
<td>11 61.7</td>
<td>5 27.7</td>
<td>10 55.6</td>
<td>6 33.3</td>
<td>9 50.0</td>
<td>8 44.4</td>
<td>14 77.8</td>
<td>3 16.7</td>
<td>15 83.3</td>
</tr>
<tr>
<td>STII 12</td>
<td>126 56.0</td>
<td>90 40.0</td>
<td>91 40.4</td>
<td>121 54.0</td>
<td>122 54.2</td>
<td>90 40.0</td>
<td>160 71.0</td>
<td>52 23.0</td>
<td>169 66.3</td>
</tr>
</tbody>
</table>

* IL = INDIVIDUALISED LEARNING
LE = LECTURE

Note: The percentage response does not add up to 100%, as 'no returns' have been omitted.

Table 8.2  Student Perception To IL And Lecturing - Responses To Nine Questions In Q.2-SPIIL.
<table>
<thead>
<tr>
<th>Q22 Preference for working</th>
<th>Alone</th>
<th>In Groups</th>
<th>Both</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>59</td>
<td>126</td>
<td>22</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>(26.2%)</td>
<td>(56.0%)</td>
<td>(9.8%)</td>
<td>(8%)</td>
</tr>
</tbody>
</table>

Table 8.3(a) Students' Perception To Working In Groups

<table>
<thead>
<tr>
<th>Q17 Work with a partner?</th>
<th>Yes</th>
<th>No</th>
<th>Very</th>
<th>least</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>140(62.2%)</td>
<td>68(30.2%)</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Q18a Enjoy working with partner?</td>
<td>28(12.4%)</td>
<td>59(26.2%)</td>
<td>72(32.0%)</td>
<td>18(8.0%)</td>
<td>8(3.6%)</td>
</tr>
<tr>
<td>b Helpful working partner?</td>
<td>47(20.9%)</td>
<td>74(32.9%)</td>
<td>47(20.9%)</td>
<td>18(8.0%)</td>
<td>4(1.8%)</td>
</tr>
<tr>
<td>c Worth continuing?</td>
<td>28(12.4%)</td>
<td>55(24.4%)</td>
<td>72(32.0%)</td>
<td>15(6.7%)</td>
<td>7(3.1%)</td>
</tr>
</tbody>
</table>

Table 8.3(b) Students' Perception To Working With A Partner
This also explains the relatively high proportion of students who indicated that they worked with friends or partners. (Table 8.2(b))

3. Study methods
(a) In terms of their study habits, the majority of students perceived that they could 'pile up' work in the lectures but not in IL (60%, 16%) (Table 8.4). Conversely, a lower percentage of students indicated that they could 'pile up' work in IL (23%, 52%) (Table 8.4).

(b) A higher proportion of students did not conceive of IL as spoonfeeding (48%, 29%) (Table 8.4) although slightly more of them perceived that IL was like reading lecture notes (40%, 38%) (Table 8.4).

(c) There was no significant difference between the proportion of students who said they learned better by listening or reading (Fig. 8.1). The majority preferred both. However, there was variability in the students' perception between groups 06 and 05. More students in group 06 preferred to listen than to read (Table 8.2). The percentage difference was not significant between the percentage responses of these two groups.

4. It was statistically significant that the majority of students perceived the lecture to be more interesting than IL (53%, 36%) (Fig. 8.1). However, group 05 perceived IL to be more interesting. (Table 8.2).

5. It was statistically significant that students perceived that they had more contact with the lecturer in the lecture situation (55%, 39%) (Fig. 8.1). Again group 05 perceived that they had more contact with the lecturer in an IL situation. (60%, 30%) (Table 8.2)

6. In terms of choice of teaching method there was no statistically significant difference between choice in IL and the lecture. Variability, however, was evident in the responses of individual groups. In STTI groups 06, 07 and 08 showed a preference for the lecture method, while group 05 preferred IL (Table 8.2). In FEUM, the two science and mathematics groups preferred IL, while the majority of Malay language groups preferred the lecture. (Table 8.2)

Finally, two points are worth noting.
<table>
<thead>
<tr>
<th>Question</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q9A In lectures work can be 'piled up' till a later time</td>
<td>136 (60.4%)</td>
<td>40 (17.8%)</td>
<td>37 (16.4%)</td>
<td>12 (5.3%)</td>
</tr>
<tr>
<td>Q9B In individualised learning work cannot be 'piled up'</td>
<td>116 (51.6%)</td>
<td>41 (18.2%)</td>
<td>51 (22.7%)</td>
<td>17 (7.5%)</td>
</tr>
<tr>
<td>Q10 IL is like spoonfeeding</td>
<td>66 (29.3%)</td>
<td>45 (20.0%)</td>
<td>107 (47.6%)</td>
<td>7 (3.1%)</td>
</tr>
<tr>
<td>Q11 IL is like reading lecture notes</td>
<td>90 (40.0%)</td>
<td>45 (20.0%)</td>
<td>86 (38.2%)</td>
<td>4 (1.8%)</td>
</tr>
</tbody>
</table>

Table 8.4 Students' Responses To Work Habits
(1) What stood out very distinctly from the summary was the variability in the responses of students of group 05 with the three other groups in STTI. Group 05 was consistently positive in their perception towards most aspects of IL in relation to their learning, whereas group 06 was consistently positive towards the lecture.

The point must be made at this early stage that the consistently positive ratings that group 05 accorded to IL, could be associated with my personal involvement in the study-teaching, tutoring and interviewing of the students. This may have produced a hawthorne effect.

(2) The results which I have reported can only have tentative value because it would be premature at this stage to draw interpretations and conclusions from the data without further examining the issues in the light of qualitative data which I will now discuss.

8.4 PART II: AN INTERPRETATION OF THE QUANTITATIVE RESULTS IN THE LIGHT OF QUALITATIVE DATA

8.4.1 Introduction

On examining the responses in Table 8.2, it is apparent that there was a general tendency for the distinct groups in the study to present distinct responses. For example in STTI, the responses of group 05 to eight of nine questions were distinctly different from the responses of the three other groups (06, 07 and 08). The responses of these three groups showed a sharing of similar responses among them. Similarly, in FEUM generally there appears to be a distinction between the responses of groups 09 and 10 (Science and Maths groups) with the responses of groups 11, 12, 13 and 14 (the Bahasa Malaysia or Malay language groups).

Such an observation can possibly justify the regrouping of the groups such as I have done below. For the purpose of analysing the data in the second part of this chapter, I will be making comparisons between these four groups in terms of some relationships between pertinent variables.
8.12

STTI - 1  Group 05 in STTI (the group I taught). I label this group STTI - 1

STTI - 2  Groups 06, 07 and 08 in STTI that used the individualised learning materials under the supervision of their respective lecturers which I refer to as group STTI - 2

FEUM - 1  Groups 09 and 10 at FEUM-Maths and Science methods groups, is labelled FEUM - 1

FEUM - 2  Groups 11, 12, 13 and 14 at FEUM composed of Malay language method students are referred to as FEUM - 2

Reference to a single unit group will be made from time to time where it is necessary to highlight interesting instances pertaining to that group.

8.4.2  The Nature of Knowledge in IL and the Lecture

In IL

It was noted in subsection 8.3.2 (a) that a higher percentage of students perceived that IL can cover more knowledge i.e. content learning was perceived to be adequate. There was evidence of this in the literature by Kulik et al. (1974) (cited in Cross, 1976) in a review of 261 papers on Keller courses. However this content was measured by examination results.

The literature does not look closely at the different meanings which students attach to 'knowledge acquired in IL' and 'knowledge acquired in lectures'. The phrase 'cover more knowledge' had different implications for different students. To those students who indicated that IL 'covers more knowledge', only a few actually related this to the content and structure of the materials, such as:

"IL contains material which are more detailed and wider....."

(05 07 1 2) *

"in IL is that after I have read through there is some exercises given to test our understanding"

(05 14 1 2)

Interpretation of code numbers used to identify open responses in Q2.SPIL

eg *05 07 1 2  05 - group number

07 - individual student number

1 - question number

2 - Response: Lecture or IL (The code number 1 or 2 does not consistently refer to either IL or Lecture. Please refer to Q2.SPIL p. 462)

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The majority of the students made indirect implications to the nature of the knowledge by alluding to the fact that they could understand better from reading repeatedly by themselves in depth and with concentration at their own pace and by doing the activities as the following quotations would suggest.

"The module is so arranged that I work systematically on work and activities given." (05 12 1 2)

With self effort a lot more knowledge can be acquired. (13 05 1 2) (T)

"Because it forces us to study in more detail and carefully." (10 02 1 2)

"I feel that more knowledge can be covered in IL because I work at my own pace. I am fully aware of what's going on and therefore more concentration is applied, whereas one's mind tends to be elsewhere at times during lectures and it is rather impossible to ask the lecturers to repeat each time I miss out a point or an explanation." (05 24 1 2)

In the lecture

Many of the students who indicated that the lecture can cover more knowledge also related this to their understanding, but this understanding was not achieved through their own effort but through the effort of the lecturer in explaining the contents of the lecture to them. They perceived the role of the lecturer as very important. They saw the lecturer as being in the vantage position of having extensive and current knowledge which he or she can quickly disseminate to students. As one student said:

Lecturers normally have more extensive knowledge. His experience and his reading may excell that of the student. (06 08 1 1) (T)*

Another student had this to say:

A lot more knowledge in lectures because in lectures students usually listen. So the flow of the lesson is faster. But its effect is not very satisfactory. (07 18 1 1) (T)

Even at university level students showed a preference to have things explained to them as one student remarked:

"Lectures can cover more knowledge because the lecturer can condense the knowledge and explain so individuals don't have to understand the material by themselves." (10 13 1 1)

*(T) - translated quotations.
The following extract from an interview transcript is another illustration of how a particular student saw his learning in terms of knowledge acquisition both in IL and in the lecture.

279: I: "What other aspects induce you to study differently in the two methods apart from what we talked about?

282:06: "...they (referring to the lecturers) said 'objectives specific' and 'implicit' that's all...so these are two meanings by which we evaluate so far...so long before the modules reach us...when I read this (referring to IL modules) I find the more you know. I gain more details about specific objectives whereby this you know give me some more personal satisfaction...I have more knowledge. I gain more knowledge concerning specific objectives.

298: I: But you could still learn this from lectures.

06: But lectures they haven't...so far they haven't given such as details about this.

301: I: But if this course were to be done in lecture form you would still learn all those things wouldn't you?

301:06: I hope so...depends you know...okay lectures...during the 50 minutes they just lecture that's all. We can't refer back like you are having a tape here see...so the same thing modules...modules we have but it is OUR inner discipline to read it and to refer it back that's all.

330: I: But can't you do the same with lectures. You can refer back to the lecture notes.

06: Lectures they give notes but apart from notes they may give some other knowledge through talking through explaining and that is more important than the notes."

This student saw the relevance of both IL and the lecture in terms of knowledge acquisition. IL to him was detail and enabled him to use his self-discipline to refer back to it, whereas lectures provided that extra knowledge which lecturers might furnish as they explained their lectures.

What inferences can one draw from the evidence so far? Clearly students appear to adopt different approaches to their study in the two modes of teaching in terms of the manner in which the materials have been presented; when presented with materials which were structured to involve students in active learning independently, students would interact with the materials, assuming that they found the materials clear, easy to follow and interesting. By interacting with the materials students may be doing the following activities which they suggested in their comments:
"Studied with care...understand in greater depth."
(13 03 1 2)

"...can read as many times. Can digest contents more effectively."
(08 12 1 2)

"IL facilitates easier understanding and only meaningful learning is interesting."
(10 15 7 1)

"I can retain the material better as a lot of reflection is done before proceeding to the next modules."
(09 11 1 2)

The above comment and the comment presented below:

"It will help us understand better because we do read on time, it will make us relax and easier to remember later (exam time) because we had understood the earlier work."
(13 21 1 2)

appear to suggest that a particular type of learning was happening to these students within the IL mode. Student 11 and student 21, for example, appear to suggest understanding of later materials because they had understood the earlier work. Both these instances may be crude examples of 'Ausubel's meaningful learning' which is "a process in which new information is related to an existing relevant aspect of an individual's knowledge structure." (Novak, 1977, p. 74)

There is implication arising from the discussion that IL mode presents a learning situation which induces students to work in a particular way. Many would probably not enjoy learning this way but placed in this learning context they would very likely learn to accept the new mode and conform to a new method of study. There is some evidence to support this contention such as

"because it forces us to study in more detail and carefully"
(10 02 1 2)

"more knowledge can be covered in lectures but the problem is whether it is understandable or not. As for me I think one understands better by IL."
(05 03 1 1)

12:22: For me because there is follow up in modules, there's activity. No matter how lazy you are you still have to read. Like lectures, we copy the notes. We keep the notes for to-morrow - I'll read it to-morrow. In the meantime, while waiting for to-morrow more notes will come to-morrow...a lot of notes...but no reading. Actually all students are like that.
(T)
It may be observed that student 03 felt that the lectures could cover more knowledge but also felt inclined to suggest that IL was more effective in terms of understanding.

In the lecture mode, students are not placed in the situation where they had to interact with the materials although, admittedly, this is not the function of the lecture. In my view the purpose of the lecture is for defining and clarifying difficult concepts and introducing new ideas and information which may not be readily available from a single textbook. There is some evidence from student 06's comments (p. 8:14) to suggest that lectures were seen to be invaluable for providing the human contact in the process of clarification and verifying which is found lacking in IL. This positive aspect of the lecture however, was not readily acknowledged in the research findings and in most of the interviews with the students. Instead the literature indicated that the lecture is effective only for the acquisition of information (Bligh, 1977). In fact Dubin and Taveggia (1976) suggest that IL is more effective for knowledge acquisition. Much of the students' comments about the lectures pivoted around the primary concern to get as much information as possible for examination purposes.

Students in the interview were asked how they acquired information from the lectures and what they did with the notes. Student 15 made the following remarks:

102:15: "Some (inferring lectures) are dictated and they go a bit slowly, but some I mean they go quite fast, but we just manage to take down the most important points.

I: And what do you do after that?

15: After that we come back...We normally compare with those who have taken all you know and fill in all the missing words and then they tell us the books to refer to sometimes.

I: Do you do the references?

15: Not much, but I think a bit (ah...for assignments) I mean we are forced to read you see because we have to do it.

I: Err what about references other than for assignment. How much do you do on that?

15: Not much I think...I think if you manage to mug up all the notes I think you should be able to answer question."

The above illustrations of students' views to the lecture is symptomatic of the responses of most of the students I interviewed. 90% of them indicated that they either 'chuck' the notes aside,
'put them aside' or 'pile them up' till the examinations. It has already been pointed out in subsection 8.3.2 (Table 8.4) that 60.4% compared to 16% of students indicated that in lectures work could be 'piled up till a later time. Student 22 admitted that:

I feel I have been here more than a year. I've never read the notes. If there is a test tomorrow I just glance a bit at them.

A few more examples would further illuminate the students' learning in the lecture and what they do with their lecture notes.

223:10: "err on the other hand I think in a lecture let's say we take lecture notes. We could just be dreaming away, yet we take you know just take down. We don't know what it's all about then we tell ourselves OK keep it to the room first then when we are free we take it out and study the notes err but I don't think I myself rarely do it even when it comes to exam times when I really read through my notes and I find so many things: I don't understand and I wonder how I could take a note now you know..." and then even I clarify. There's so many many things to clarify you know...

This was a student who could be described to be impartial to the lecture or to IL. Other students inferred similar observations.

179:06: mug up certain important facts you know which we have to really remember so I have to mug up.

69:16: ...take all the relevant points and then memorize.

247:04: pile notes till near examinations...used to it from school we have been doing this.

Much of the evidence seems to suggest that the lecture, although effective for the transmission of information, McKeachie (1967), D. Bligh (1971), Dubin and Taveggia (1968) is not likely to be effective for helping students to use the information critically to develop effective study approaches and independent critical thinking. It has been said that in a lecture, students carry away in their heads and in their notes no more than 42% of the lecture content and can recall only 17% one week later, McLeish (1968, p. 9).

The discussion so far has led me to infer that it is not the acquisition of knowledge that is the issue here but what students do with the knowledge. It has been noted that the students tended to interact with the IL materials whereas they tended to 'pile up' their lecture notes. The implications it would appear would be for a student to be placed...
in a learning situation where he/she has the advantage of reacting to well selected materials (including media) where he/she can learn more effectively than one which is provided with largely verbal information and materials, Wittich and Schuller (1973). On p.8:15 I have inferred that learning through the IL mode is likely to lead students towards meaningful learning.

On the other hand there is much evidence to show that in the lecture mode students were emplaced in a learning situation which carried over from school reception learning which Ausubel (in Novak, 1977) described as a learning situation where students receive information from the teacher. He distinguishes between rote reception learning and meaningful reception learning. With the lecture mode the evidence points to rote reception learning where the information transmitted to a student by a lecturer is 'mugged up' and said to be learned by rote in a non-interconnecting fashion of new information with information previously acquired. With the IL mode the evidence from students' comments suggest a learning situation where students receive the information from lecturers in the form of printed materials supervised through their study, with one set of material leading to the subsequent ones in an interconnecting fashion so as to lead students towards a meaningful reception learning.

In Ausubel's learning schemata, Fig. 8.2, p. 8:19, this would be a type of instructional model where the instruction stops short at reception learning which in the absence of extended guidance and selected tasks for students to perform, is more likely to lead students towards only rote reception learning.

In a more student related learning situation a student can be encouraged to answer questions because questions demand active responses (Bligh, 1971), or learn to apply knowledge to different situations (Beard, 1970).

Learning by IL and the lecture encompasses Marton's (in Laurillard, 1978, p. 25) different conceptions of learning: "learning as being something you do and learning as being something that happens to you". Knowledge in IL is what students themselves can experience and understand, whereas knowledge in a lecture is what lecturers can convey to them ie the degree of clarity of the content which the lecturer is able to present.
8.4.3 The Nature of Understanding and Retention in IL and the Lecture

In IL

Students' conception of their understanding and retention in IL is directly related to its self-paced facet. Students claimed to learn in a pressure free environment in their own time and place. Similar feelings pervaded through a cross section of the student population in the study as exemplified by the following quotes.
"Found it (IL) less pressurised - coping with my own individual level of understanding."
(05 02 15A)

More calm in approaching my learning.
(13 02 15A) (T)

"If we can pace our own work we won't build in anxiety, worry or be too free and get bored."
(09 10 15A)

"In a class of different IQs and achievements the intelligent ones don't have to wait for the slower ones."
(10 08 15A)

To give time to study according to one's interest evokes feeling of responsibility towards learning without help from other people.
(13 15 15A) (T)

Learning in such a pressure free environment was perceived as advantageous for learning with understanding and for retention. Such feelings as expressed in the quotations below clearly pointed towards students' concern for more time and opportunity to 'think' and do things to and for themselves.

"A lot of time is spent on reflecting."
(12 13 4 1)

"When doing the assignments one has applied what one has learnt. This helps to retain the subject matter."
(13 07 4 1)

"Here, we have to read several times before we can really understand and start answering the questions. So much so the main and important facts stay in our brain. Whereas for lectures after notes are given and explanations by the lecturer, we do not bother to even read through the notes again."
(05 06 7.1)

"Because we read ourselves and try to understand by ourselves."
(10 06 4 1)

Perhaps one of the most succinct and impartial evaluation may be reflected in this quotation.

"This again depends on the lecturer and also the subject matter covered. Lectures would be more effective if the lecturer took the trouble to gauge the students' response either by allowing students to interrupt lectures at difficult
points or the lecturer him/herself uses his/her discretion at difficult areas of the subject matter and if difficulties seem to be encountered by the students then the lecturer can reword his/her explanation. In contrast to this IL has to be worded carefully and students' difficulties may not be envisaged. Nevertheless, IL allows the person to reflect and meditate deeper into what the module is trying to convey. As such, on most occasions, we can understand the subject matter better in IL.

It may be inferred from the foregoing student's comments that in an IL situation students felt personally responsible to study on their own with depth and attention for the benefit of enhancing their understanding and retention. The point had been made earlier as to how the two modes of teaching tended to induce either a rote reception learning or a meaningful reception learning which may account for students' understanding or lack of it. It has also been suggested by learning theorists that material that is learned by rote memorising will not show up in the transfer setting as well as does material that is more meaningful.

"...most memorised information is soon forgotten and that forgetting starts immediately."

Ericksen, (1974) p. 44

Fig. 8.3 is a schematic representation of the retention characteristics of the two types of learning - rote and meaningful.

Fig. 8.3 Retention Of Rote And Meaningful Learning in Ericksen (1974) p.45
The retention curve for meaningful material along the timeline shows a gradual ascendance which goes beyond the examination where forgetting is not as steep as is evident in rote learning. Rather than being forgotten "meaningful material continues to become better organised as the student finds ways to apply and to utilise it in situations outside the classroom." (Ericksen, 1974, P. 45). That students were readily able to retrieve information for application can be shown in the following comments by a student in a group interaction task situation (to be described in Chapter 9).

06:12: "After the module C when I really got interested and that day I was really thankful for the fact that I was really happy you know after the err group (faded out). I feel that I was so surprised that I could sort of discuss among ourselves even though the other two of my friends I feel that they are so interested but most of the answers were sort I gave most of the voice, most of it I mean not to boast.

I: No, no, no because I was observing this. Why was that?

12: Because I understood. I was so surprised that I could just give the answers and then when we look after you gave back our answer sheets it was correct you know it really began to sort of boost up my encouragement you know."

There is some evidence from this that there is a carry over effect of IL over a longer period of time. On the contrary Ericksen (1974) p. 56, asserts that learning done twenty four hours before an examination can produce high examination results if it was done by drill, memorising and mechanical rehearsal, but these are insufficient forms of overlearning. Cramming for a test may enable a student to pass it, but organising and reorganising information for purposes of understanding is a far more productive means of study.

There is a further positive spin off of meaningful learning that merits discussion here. Students who were able to study this way expressed satisfaction and self-esteem and developed a sense of motivation. One student expressed her satisfaction thus:

"I found that I performed better than others and this makes me feel that my effort is worthwhile."

(08 22 15A)

and a few others said:

"Because I can understand certain facts well and as such the student feels he is successful in what he learns."

(12 02 6 1) (T)
"I have every confidence in my ability, I tend to be more organised."

(IL does not require internal pressure (other people). One's own diligence brings advantage to oneself. If one didn't have one's own initiative it would result in being left behind."

Here are two more quotations from interviews with group 05 students.

296:04: When I can understand what I read that will motivate me to read more

I asked the following student what he thought about learning through IL and he said:

315:16: I can say it helps because it built up my self-confidence in myself where I mean I can do something without being asked to do so.

I: When you say 'built up your confidence' err how did that build up your confidence?

16: -Err before this I sort of had err a feeling that I can't carry out a certain thing without the help of somebody. So then I found it difficult to do certain things but then after completing the module I did most of it by myself, I found that I have confidence in doing certain things."

This student went on to explain that hitherto he had been used to lectures and felt 'safe' in the sense that "you get whatever you need, sort of you're provided with...but it's a feeling that it's spoonfed."

The students in these examples had discovered a self-confidence which in its wake tended to generate their self-esteem. The value of satisfaction arising from self-esteem cannot be better explained than by what Eriksen had to say about it. He labels this kind of self-esteem as self-related motivation and suggests that it cannot be divorced from the individual person. He says further that:

"Self-esteem is an ever present need and especially so for the maturing young adult. The quest for self-identity tinged nearly everything that students do, including their perception of teachers and how and what they study. The satisfaction of these self-reference motives is considered more powerful than the various kinds of extrinsic rewards that are contingent upon the attainment of grades. A teacher's crutch-like dependency on extrinsic lures and threats for motivating learning ignores the intellectual curiosity of his students, their desire to understand, and their need for self-esteem."

(Eriksen, 1974, p. 78)
In the lecture

Understanding and retention in the lecture takes on a different form. Students conceived their understanding as being very lecturer related as illustrated in the quotations. The lecturers' explanation was frequently given as a reason for their better understanding and retention.

"Because during lectures lecturers will talk and explain that will make us understand better compared to IL which makes us read and understand alone."

(13 21 2 2)

Written explanation sometimes cannot give a clear picture. Examples cannot be made situational. All subject matter can be presented repeatedly.

(05 09 2 2) (T)

The lecturer was also perceived to have more 'ideas' because usually lecturers can put forward more ideas whereas we learn through IL we only acquire in the books which are studied.

(14 12 2 2) (T)

Quite often the lecture was perceived to be more effective for understanding and retention because it was perceived to be more interesting as evident in the following quote:

102:10: "Lectures are more interesting especially the lecturers who are competent in the job who make their lectures interesting by punctuating a joke. Let's say incidences in the classroom for example lecturer acts up a certain gesture just to apply the point home. You think of it, you think of the lecturer's action, what was he trying to tell and then you think oh yeah! he was trying to tell us about explaining this fact. Let's say psychologically he could act out the way the child babbles or what then you remember well."

"This is due to the fact that during lectures you've got to listen and pay careful attention to what the lecturer says. This enables you to grasp the subject matter and thus retaining it better. Whereas in IL you've to read the modules yourself and sometimes whatever you read may not interest you. So you may just not read it at all or just skim through without understanding the subject matter."

(11 16 4 2)

While lectures may indeed be effective for communicating an idea interestingly, the literature suggests caution in viewing them. Naftulin et al. (1973) and Meier and Feldhussen (1979) concluded in Dr Fox's theory that "student satisfaction with learning may represent little more than the illusion of having learned". One
student in the study made a similar observation with respect to one's understanding in the lecture.

12:22: "He feels he has understood but actually he understands little."

Another student made the following observation:

"Some lecturers are not very well...prepared...They come in and they say 'err hey you know about the tennis balls, what happened to them?'...they come in but then they are not doing their lecture...and those are the lecturers who the students say are good lecturers..."

The lecturer's explanation and guidance is important for student learning and cannot be underrated. What student 06 said (p. 8:14) is pertinent here ie that the lecturer can present 'knowledge' in the course of his explanation by which he probably meant 'other knowledge' that is not available in text books. This has implications for student learning. The lectures were perceived to have redeeming attributes but more often they are not properly exploited and instead allowed to degenerate into mere vehicles for passing information. Used in this way the lecture constitutes a method that is counter productive to student learning.

I have described how students found it pressure free to learn through IL. Interestingly, some students showed an aversion to IL because of the pressure they said IL put on them. They felt unhappy because there was ironically no pressure placed on them. The self-pacing facet of IL they perceived had tended to make them procrastinate so that:

"There is a great tendency to slack down and do the modules simply for the sake of completing it as soon as possible."

(05 24 15D)

Another student perceived IL as inducing:

"Laziness because there is no external motivation, hence may take a much longer time to do."

(10 13 15D)

Some students reported having a sense of pressure and burden thus raising their level of anxiety:

"The problem is sometimes I did last minute work and work became a real disaster to me because I was so unsatisfied with it - and had to redo it (as it is not good enough)."

(05 16 15D)

410:20 "Personally I feel that not doing it well is a burden. Not that I can't. Not that I can't understand it but I haven't really tried to understand it and there I find it a burden because since the beginning of this course err
I feel it sort of I'm not doing my duty to go about them, really go about understanding."

Further on into the interview I realised that he was linking his feeling that IL was burdensome with his sense of 'guilt'. I then asked him whether he did not feel guilty when he did not read his lecture notes (he had earlier indicated that he 'chucked his notes aside') to which he replied:

20: "...after the exam you feel more regret."

The complexity of student learning as exhibited by Malaysian students shows up quite clearly here. On the one hand the student felt a sense of pressure because the IL mode lacks internal motivation to spur them to work. On the other hand some students also felt a sense of pressure because of the deadline set. The question seems to pivot around the central idea of how much pressure or anxiety should one place on a student in any particular learning situation. At this point I can only suggest that some amount of anxiety is healthy for student learning, but a more elaborate discussion of this issue is outside the purview of this study.

8.4.4 Student Study Methods in IL and the Lecture: An Interpretation

8.4.4.1 Introduction

The development of good study methods have been found to be an important determinant of better students, Main (1980). The whole purpose of research into student learning is to produce better students. If a method of teaching can help to produce better students, then it is a method worth considering. Hedges (1978) suggests that students learning through IL, 'developed study habits or skills which fostered content acquisition' but pointed out that more research was necessary to establish this.

In Chapter 5, I stipulated that one of the concerns of this research is to investigate whether students who were averse to IL would, in the new teaching method, adopt different study methods. For example, it would be interesting to find out whether students who were used to 'piling lecture notes' and study at the last minute, would adopt a different study approach in IL. I would suggest that students made to study in a particular teaching mode and given the time, would adopt
different study methods to suit the different teaching modes

This part of the analysis extends the quantitative findings reported in subsection 8.3.2 where there is indication to suggest that the students in the IL mode were inclined to develop certain study methods to suit the teaching mode. The following analysis examines qualitatively, and where relevant quantitatively, a few aspects of student study methods in IL and the lecture.

8.4.4.2 "Hardworkingness"

It was found and reported in subsection 8.3.2 that a significantly higher percentage of students across all groups indicated that IL induced hard work and it is more interesting to note that more students in STTI-2 perceived this than students in STTI-1. However, as will be shown and explained later, the perception of students in STTI-2 does not necessarily correlate with their choice of teaching method.

The qualitative data suggests that 'working hard' held different meanings for different students in the two modes of teaching.

In the lecture Students who indicated that they worked harder in lectures dwelt more on issues related to content acquisition, assignments, tests and examinations. They worked harder to complete their lecture notes and prepare assignments so as to get grades and they studied only for tests and examinations. Some quotations will illustrate the above findings:

"Of course, I have to work harder in lectures because once we are told there will be a test on a particular topic, everybody starts looking over the notes and after the test it vanishes like bubbles." (05 12 5 1)

"In the lectures for most of us a lot of the lecture notes are not complete. We have to look out for the books all over the library and from friends." (09 10 5 1)

"It depends if we have got to pass up our assignment (in the case of IL) within a certain time limit, then we have got to work harder. Else we got to work harder in lectures, such as hunting for reference books, read up those chapters assigned by lectures, etc. as the facts given in the lectures may not be sufficient." (10 15 5 1)
"Because lectures require us to do so especially when we cannot understand or get the notes. In IL the notes are with us that we tend to take our own time to read up."

(10 12 5 1)

We work harder in lectures because lecturers ask us to look for specific definitions. This is a waste of time. We only read notes and try to understand ourselves.

(06 23 5 1) (T)

I learn with earnestness because I have understood and when the lecturer asks me to do a particular thing I feel it my responsibility.

(06 29 5 1) (T)

The last response is an example of an atypical response. It reflects the students' concern for working hard in order to meet lecturers' expectations.

In the IL mode 'hard' work was generally related to working alone for understanding and self-benefit, doing assignments and activities and meeting deadlines. These are reflected in the quotations below:

"A lot of assignments... the activities in the modules make me work harder."

(06 14 5 2)

"We have to work in our own pace but we have to work hard so that we can follow up. But in lecture we tend to relax and work at the last minute."

(09 02 5 2)

"I work harder in IL because if not I won't remember what I am reading. If for the first time I read on and I didn't understand then I go through it one more time so that I can understand better. Although it takes more time than lectures well learning by our own can make us remember better."

(02 15 5 2)

"In IL you have that psychological feeling that you are working all alone and all for yourself and you tend to work harder at it. Furthermore, you can go at your own pace and that I think helps a lot."

(05 03 5 2)

"Well lectures tend to make a person more lazy and no initiative in working harder because there's nobody to check one's work and furthermore lecturing nobody cares for anybody. The lecturers and the students are totally different groups."

(08 20 5 2)
Working hard can also be the function of the individual student's inner inclination which one should not fail to recognise. The quotation below is an example of such an inclination.

"A bad lecturer makes me work harder (unwillingly) and a good lecturer leaves me more time for leisure. In IL the determining factor is more often myself."

However, this again is an example of an atypical response possibly made by a student who perceived his learning as being self-motivated and self-directed. Judging from the responses, this is the exception rather than the rule.

I was curious to find out to what extent students' perception of 'hardworkingness' in a particular teaching method was correlated with the choice of one or another of the two teaching modes. Earlier I had said that the perception of STTI-2 students did not correlate with their choice of method. Table 8.5(a) represents the perception of the four main groups to the variable 'working hard'. It is to be perceived that groups STTI-2 and FEUM-2 perceived IL as inducing hard work at a higher proportion that STTI-1 or FEUM-1. In Table 8.5(b) controlling for the lecture as the variable that induces hard work, most of the students in STTI-2 preferred to learn by the lecture mode. Similarly, when controlling for IL as the variable that induces hard work (Table 8.5(c)), students in STTI-2 preferred the lecture and STTI-1 students preferred IL. A similar pattern can be observed with the responses of FEUM-2.

The interesting outcome from this analysis is the observation that when compared with STTI-1 and FEUM-1, a relatively higher proportion of students in STTI-2 and in FEUM-2 perceived IL as inducing hard work, yet the evidence suggests that they preferred the lecture method. The opposite is true of STTI-1 and FEUM-1. What inferences can be drawn from this? I would suggest that the results had to do with the manner in which the different groups perceived 'hardworkingness' in IL and the lecture and the value they placed on this.

In one instance a premium or value had been put on 'hardworkingness'. It may be possible that students who made the choice for IL made it in spite of the fact that they had to
### Table 8.5(a) Method That Induces Hard Work

<table>
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\( (\chi^2)_{p<0.01} \)

### Table 8.5(b) Hardworkingness Correlated With The Lecture As Choice Of Teaching Method

(Controlling for the lecture as a method that induces hard work)

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\( (\chi^2)_{p<0.05} \)
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</tbody>
</table>

\((\chi^2)p<0.05\)

**Table 8.5(c) Hardworkingness Correlated With IL As Choice Of Teaching Method**

(Controlling for IL as a method that induces hard work)
work as hard as they had expressed in their quotations. On the other hand, the students who chose the lecture did so because of the fact that IL was perceived to be hard work. In fact there is some evidence below to suggest that this may be the case:

"Habit of being 'spoonfed'"  
(07 08 2 2)

"Lack of interest in reading and reluctance to digest materials."
(06 24 1 1)

This work is somewhat difficult and burdensome besides taking somewhat longer to complete it.
(11 13 13D) (T)

This work sometimes consumes a long time for real and accurate understanding. But it is attractive.
(08 17 15D) (T)

"When I'm lazy I will not be able to complete my work in fact to understand it does take a lot of time."
(05 10 15D)

"The disadvantage is that I feel lazy to read and answer any questions given out."
(07 02 15D)

"Needs to work very hard otherwise will be left behind. No time for relaxation."
(09 02 15D)

"Not much incentive to work on one's own if not pushed."
(11 14 15D)

It seems that these students did not see the advantages of investing too much effort and time to study on their own. It may be inferred from the foregoing discussion that there is strong evidence to suggest that a different teaching mode is likely to induce students to study in a particular way. This, however, does not answer the question as to whether students would adapt their study method to suit the new teaching mode. The evidence which I shall present below points to the fact that students may be inclined to change their study methods over a period of time when made to study in a different mode. It would, however, require a longitudinal study to establish the certainty of this fact, but within the scope of this study there is evidence to show that there is a predisposition for students to adapt their study habits to the new learning situation.
Perhaps an obvious illustration is the distinction between the responses of STTI-2 with those of STTI-1 in terms of their choice of method and perceptions to a number of the facets of IL which I have so far discussed. The consistently positive responses of STTI-1 to IL over many of the variables investigated, as well as an examination of some of their qualitative comments, tended to point to the effect on their attitude of the three months experimental treatment in learning through IL.

After working on three modules (there were seven modules altogether) I interviewed the students individually to gauge their reactions to IL. Some of their responses which I shall quote here contain some indication of the effect IL had on their study habits. I shall only quote some of the comments of the students who showed displeasure at one time or another during the course towards learning through IL.

232:15: "Like first when you brought in the modules, I'm not actually very interested in it because it was - I mean I found it was occupying time and also I felt because it was completely strange you know, because normally we have lectures and then we go back just complete our assignments and that's all so this was something new, but later I think we have got to do it I think we got used to it somehow or rather I got used to it.

89:12: Actually I'm very frank on my comments. I feel that the first three A, B and C I wasn't very keen at all.

... some of my friends they are so interested...I was telling myself if they are interested there must be really something...

I: When do you feel the relevance err when do you begin to feel that it's relevant?

12: Mainly because of one girl... I feel she's not in English option you know yet she found no problem doing it and she's so interested you know... So I really envy her kind of attitude... So I went back and took them all out again A, B and C. I took out everything then and told myself I must really read then follow the stages. I mean really give a deep thought. So after that day I began sort of to get keen. I never fall asleep in class. I mean at least I look forward to modules..."

*A girl who piloted the ILM in the pilot study.
The following interview recounts the development of a student’s conception of IL after exposure to six units of ILM.

09:19: "See this is my first time doing modules you see, so struggle new (faded)... but I don't like it that much.

L: What aspect of it don't you like?

10:09: mm mm there are some parts I mean sometimes you just get bored with general reading and anything like that and some parts you don't understand. When lectures err if you don't understand you can ask the lecturers."

He then went on to suggest that the content of the ILM was not enough; he also suggested that the modules should be completed in the classrooms. This he suggested was the result of my leniency which brought with it a lack of compulsion. The student added that he was concerned about exams and that the method was new to him. Then towards the end he said:

"Modules are good if you're consistent I think... I think it was too early to know and really judge."

Student 19 is an example of a student who was averse to learning through IL but throughout the interview displayed signs of uncertainty about his feelings until he finally said that it was too early to judge. Similarly, the following student showed some indication of a possible change of attitude.

350:20:

"I must admit individualised learning method is interesting. I can manage at my own pace but have still got to get used to it."

8.4.4.3 Time spent on IL

There are other ramifications of working hard which I will discuss now. On p. 8;30 it was observed that students who preferred to learn by the lecture mode did not perceive it advantageous to expend time and effort to study on their own. In Tables 8.6(a) and (b) it may be shown that more students in STTI-2 and FEUM-2 indicated that IL makes them work harder when they actually worked for a period of less than three hours. With STTI-1 and FEUM-1, on the other hand, there appears to be some congruence in the time expended (3-5 hours) with their perception that IL induced them to work harder.
<table>
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Table 8.6(a)  Time Spent In A Week On IL

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Table 8.6(b)  Method That Induces Hard Work
8.4.4.4 Efficiency in study methods

My feeling is that the time spent to learn in a particular method is related to the manner in which the student conducts himself in that learning situation, i.e. what he actually does with that time, and the value of the time spent lies in the degree of efficiency with which he uses that time. I would argue against the contention that successful students spend more time on their study (Sexton, 1965, in Main, 1980) and suggest that habits, attitudes and skills at study methods are more important than the number of hours spent on study (Burrow, 1946, in Main, 1980). There is much evidence in the qualitative data illustrated below to substantiate the points I have just made.

In IL

In the IL mode when students referred to working efficiently, they were attributing this to what they personally had to do, for example:

"Deadlines for modules have to be met. One has to keep oneself on one's toes as it is personal effort in completing the modules." (05 07 6 1)

"With IL we take more care to understand and remember." (03 01 6 1)

We study more on our own without being spoonfed, (07 04 6 1) (T)

"I work efficiently in IL because I spent a good time on reading so that I can cover all the subject. Concentration can be put in and learning can be improved." (07 15 6 1)

The activities in IL have more effect. (06 27 6 1) (T)

"Like in No 5 I mentioned that I had to work harder by IL. Naturally the work will be more efficient." (05 03 6 1)

"The note given in the module is clearly stated and easy to understand, whereas in lectures given sometimes when I'm lazy I just don't want to write down anything on my notebook." (05 14 6 1)
In striking contrast to the preoccupation with the 'self' and its interaction with the materials (the same responses were noted in subsection 8.4.2) study efficiency in the lecture mode was perceived to be related to what the lecturer can offer quickly, clearly and interestingly as exemplified in the quotations below (also noted in subsection 8.4.3):

- can interact with the lecturer and other students and all problems can be solved. (06 12 7 2) (T)
- "Lecturer's attention towards learner is better in lectures." (06 06 7 2)
- "As I have been brought up with certain guides such as my parents, my teachers, my sportsmaster and so far consequently I work more efficiently in lectures as there are lecturers to guide me through with my work." (07 07 7 2)
- "Generally lectures are more interesting especially the lecturers who are competent in their job and who make their lectures interesting by punctuating them with jokes, descriptions of vivid incidences connected with the subject. One tends to remember more - relate incidence in classroom situation to lesson." (05 07 7 2)
- "Lectures provide a good framework." (09 15 7 2)
- "More concentration within the limited time." (10 05 7 2)
- "No need for further research." (10 05 7 2)

Clearly there is a distinction between 'studying efficiently' in the IL mode and 'studying efficiently' in the lecture mode which the significant finding in the quantitative analysis in subsection 8.3.2 had not been able to establish.

8.4.4.5 Procrastination

Procrastination in IL has been a cause of concern to the students. Some of the reasons which the students provided were the lack of pressure from the lecturer in a self-paced learning situation, lack of incentive and self-discipline and the workload in their institution. These are visible from the following comments which the students made:
"Discipline is much required to do proper work. If not tend to be lazy and may forget about it."

(10 12 15D)

"Not much incentive to work on one's own if not pushed."

(11.14 15D)

II requires personal initiative without inducement or pressure from other quarters so they learn on the basis of their mood.

(07 06 15D) (T)

"Need self-motivation to do the work. Quite often work gets piled up - result is anxiety."

(06 09 15D)

"Tendency to procrastinate. Need to rush it at the last minute."

(09 16 15D)

060:05 "...this method is very good unless we have self-discipline..."

This may also be due to the workload in STTI which was mentioned quite often as a reason for procrastination on the part of the students.

"The II seems to have given me problems in pacing my own work because of the workload in the college itself."

(08 20 15D)

Cross (1976) suggests that when a self-paced course exists among traditional courses, students are tempted to meet the time demands of other courses by neglecting the course that makes no rigid internal demands on them. Evidently, the main cause of the students' concern was their own lack of self-motivation and self-discipline. This was perhaps only to be expected. In a self-paced learning situation the responsibility for learning is on the students themselves and having been conditioned to use a particular study approach in the traditional system, Malaysian students may not be ready for or be comfortable with that change.

Time will be needed for students to unlearn some of their old strategies and develop new ones in a new learning situation - a point already made earlier. In fact a state of anxiety was apparent among some students. I quote again what student 20 said:

410:20:
"I know what I have to do. I knew what I should have read earlier and yet not having done it so I feel guilty."
I am here referring to the conditional learning of Malaysian students (developed further in Chapter 10). At many points in the analysis, students remarked that they were used to the lecturers and to listening right from school.

**Procrastination in the lecture** can be more serious where lecturers have no control over what their students do outside their lecture hours. Perhaps traditional teaching encourages procrastination and its inevitable partner, cramming the week or night before the examination. For a conventional course "it may actually be good grade getting strategy to study intensively just before the examination so that forgetting does not have an opportunity to occur until after the test period" (Cross, 1976, p. 99). The evidence of this is very clearly stated in a few of many such quotes:

"There is no-one to check lecture notes so we can pile up."

(11 20 9A 2)

"If no assessment is done by the lecturer."

(09 15 9A 2)

"I agree through experience."

(10 15 9 1)

"Lecture notes can always wait until exams come and study."

(10 13 9A 1)

"Tends to relax and struggle at the end."

(09 02 9A 1)

"Spoonfeeding and become lazy being the reasons."

(08 20 9A 1)

Only three students actually said that they could not 'pile up' lecture notes because this 'can become a burden if left to a later time'.

In contrast it was perceived that IL could not be 'piled up' (Table 8.4, p. 8:10) for the following reasons:
"I agree or you can't keep pace with your friends who finished first."

(05 11 9B 2)

Work must always be systematic and according to time schedule - cannot understand subsequent lesson if the one before is not read up.

(13 15 9B 1)(T)

"In IL you cannot pile up your work. It is because you are given a deadline and if you can't finish it you will feel guilty."

(05 25 9B 2)

"Assignment needs to be handed in in a week's time."

(10 05 9B 1)

"One has to finish reading only by doing this can one work on activities and assignments."

(05 19 9B 2)

From what has been discussed so far, it appears that procrastination happens in both modes of teaching but clearly in IL students who tend to procrastinate can be identified and given more help. In the lecture situation as one student put it, 'no-one knows or cares less'.

8.5 VARIATIONS IN GROUP PERCEPTIONS TO IL AND THE LECTURE

Drawing on the findings so far I have observed that there was between-group differences in how IL and the lecture was perceived. This section aims to highlight the reasons for the discrepancy which may have important implications for the study. Three levels of discrepancy were observed and will be discussed below:

(a) between groups 05 and the three other groups in the same institution (STTI), but the discussion will be confined to only groups 05 and 06,

(b) between STTI and FEUM,

(c) between PDEM-1 and FEUM-2.
8.5.1 Variations in Group Perceptions between Groups 05 and 06 of STTI

I shall confine this discussion to groups 05 and 06 only because they form highly contrasting groups but are more comparable academically (I was informed about this by the head of the Education Department of STTI). They differed only in their methods options. As I have explained in Chapter 7, group 05 was composed of students preparing for Art and English methods and group 06 was composed of students preparing for Art and Malay Language methods. Group 05 may have an edge over group 06 by using the ILM in English because they were more conversant in the English language, but this should not have been an issue because group 06 was expected to use only three modules - A, B, C - which were translated into the Malay language. In any case in my experience with group 05, 50% of the students could not be described as having good spoken English. Some, in fact, had expressed dissatisfaction with the IL because they were written in English. I quote a couple of these expressed concerns here.

12:22 Because this module is in English...perhaps the language is a bit difficult to understand because of language problems but I feel if this is given in Malay language it is easier to understand.

(T)

Student 22 was expressing a general concern because later he said:

Not everybody likes learning through modules. For me I like it.

(T)

40:20: "...actually we wanted to tell you we are doing this in English...then I mean doing this course in English and end of the year we are going to say in Bahasa...For us (referring to non Malay students) little of a problem, for those Malays err in my class...

I: But they are English option students

20: They may be poor in English so harder for them to translate it...

Again student 20 was expressing a general concern for the language problem. On p. 8:42 I mention how I overcame this problem.
Yet variability in the perception between groups 06 and 05 was noticeable in every aspect of the teaching methods except understanding in Table 8.2. Some explanations for this may be offered. I do not think that the variability in perception of the two groups had very much to do with the language issue. Nonetheless, it is difficult to pinpoint to the exact reason. There is a strong indication that the students in 06 had a very positive attitude to their lecturer whom they perceived as very effective. Most of the responses of students in group 06 favouring the lecture pointed to aspects related to the lecturer's competence and their own interaction with their lecturer. So when placed in a learning situation where they had to work on their own they found this quite burdensome. As Ericksen (1974) observes, an effective lecturer can have a powerful influence over students.

"The teacher is a model from whom the student derives cues as to the direction and style of his own behaviour... The student will be influenced (reinforced) more by a model he respects than by one he dislikes. The modelling influence of the teacher is far more persuasive than his narrowly defined role as an information giver..."

Ericksen, p. 107

This holds true for Malaysian students who are very dependent on their teachers. Chapter 10 discusses more of this. As I have indicated in p.8:11 the special treatment accorded to group 05 in the study may have produced a 'hawthorne' effect to the extent of inducing students to react positively towards the method being experimented. Yet, there was evidence that this was not entirely the case because I was confronted and the teaching method resisted. After the sixth unit, one student took it upon himself to speak for the other students in his class; he stood up and protested openly that he did not like learning in that way, meaning using ILM. I was later to find out that some students had, in fact, informally discussed their anxiety in learning through ILM in English and that the self-appointed spokesman was really explaining the case of a minority group of five male students. The problem was quickly and easily overcome after some explanation and assurance from me that I would give them each a set of the modules in the Malay language at the end of the course.
8.5.2 Variations in Group Perceptions between STTI and FEUM

Variation in perception was also found to exist between STTI and FEUM (section 8.3.2) in terms of the understanding value of IL. The FEUM showed a higher percentage response for understanding when learning through IL, (average of 55% for FEUM and 29% for STTI). (Table 8.7, Appendix E5)

This is an interesting though perhaps not surprising outcome. Students of the FEUM-1 and 2 have had the advantage of at least three years university education. There may be two implications of this.

1. The students have generally found lectures to be less useful to aid their understanding and hence found learning through IL more helpful for their understanding.

2. The students were more mature and in the course of their undergraduate days had had the benefit of substantive self-study.

Most of the students of STTI-1 and 2 came into the teacher training college fresh from O-level schooling although a few have had a Higher School Certificate education. In the college they were placed in small groups in classrooms typical of the physical arrangements in a school system and as in schools they received instruction from their lecturers. In this situation they were more able to interact with the lecturer and consequently felt that they could understand the lectures better. It is possible too that they had not been weaned away from dependence on their lecturer (Wankowski's finding in Beard (1973), O'Connel et al. (1970)). I envisage that the system tends to perpetuate student reliance on the lecturer. I have alluded to this lecturer-related learning earlier in 8.4.4.

There are important implications of the two kinds of structuring discussed above which I shall discuss further on in the chapter.

8.5.3 Variations in Group Perceptions between FEUM-1 and FEUM-2

Within FEUM a difference in the students' perception towards IL and the lecture was also perceived between the Maths and Science groups and the Malay language group. The reason for this is not immediately clear although, as one lecturer observed in Chapter 10, it may be related to the different learning characteristics engendered by the two different disciplines. In the case of Maths and Science students they were trained to think in precise terms such that they may feel more comfortable to study in the linear step-by-step presentation of the ILM. The Malay methods groups and perhaps social
Science groups, in general, prefer to study in a non-linear approach. The discrepancy that has evolved in this section seems to raise some questions as to who can learn best by IL, mature students or less mature students? Science or social science students? I feel this is not an issue because IL can be tailored to the needs of the different levels of competencies. However, an important implication may be derived from this in that more research is needed to explore the use of IL at different levels of education and different disciplines.

8.6 LEARNING ORIENTATIONS IN IL AND THE LECTURE

The earlier analysis and discussion had focused on the cognitive aspects of student learning and their study methods in the two modes of teaching. What is not yet clear is the process of learning that students adopt when they learn through IL or the lecture. Evidence has been found that students interact with the materials in IL but it has not been established how they did this or what learning approach they adopted in the lecture system.

From the qualitative data analysed students may be seen to adopt distinctive learning orientations to the two methods of teaching. The responses can be typecaste into two distinct orientations - the SELF and the LECTURER. Students who favoured IL gave reasons related to the SELF eg:

- IL materials are self-explanatory,
- with self-effort a lot more knowledge can be acquired,
- doing by oneself and applying what one has learned,
- enables reading in depth, sharpens thinking,
- work harder at my own pace and time,
- can retain the material better,
- I don't waste time,
- coping at my own level of understanding,
- understand at my own pace,
- study according to one's interest,
- evokes feeling of responsibility towards learning without help from other people,
- motivates thinking and working by oneself,
learn about discipline, self-control, time management,
my assignment is always finished on time,
helps us to make the effort to study by ourselves and not depend only on the lecturer,
feeling of satisfaction and happy with one's work and motivates greater effort.

On the other hand the students who favoured the lecture placed a great deal of emphasis on what the lecturers can do for them in the lecture situation, as well as indicated signs of aversion to spend time and effort to learn by themselves as these snippets illustrate:
-
- lecturer will talk and explain that will make us understand better,
- can interact with lecturer,
- can ask the lecturer and get answer on the spot,
- lecturer has more ideas,
- lecturer gives guidance,
- in-exams we can recall facts by thinking about the lecturer's lecturing,
- in lectures there is verbal humour,
- reading alone only, (referring to IL)
- no competition,
- IL has wasted a lot of my time,
- lazy because no external motivation, (referring to IL)
- strain both mentally and physically.

The evidence to suggest that there are, in fact, two distinct types of learning orientations is shown by the distribution of responses in Tables 8.8(a) and (b). In Table 8.8(a) there is a far smaller distribution of students who attributed their learning in IL to the Lecturer Role and Attributes (category III in the table). Instead an overwhelming response related to Student Learning (category IV) which was about learning through their own self-effort. (Please see meanings of notations in Appendix E2)

In contrast, in Table 8.8(b) the greatest number of distribution of responses was related to Lecturer Role and Attributes of the kind illustrated in the list earlier. Where the responses related to Student Learning they were very much to do with such concerns as
-
- remembering better the spoken words,
- dislike of reading,
- used to lectures,
- oriented to examinations,
Table 8.8(a) The Distribution Of Open Responses Of Students In Favour Of IL

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Table 8.8(b) The Distribution Of Open Responses Of Students In Favour Of The Lecture

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can leave to the last minute
- lack motivation etc.

The evidence has led me to conclude that in the two methods of teaching, students displayed distinct orientations to learning - one which is self-oriented (SOL) and the other lecturer-oriented (LOL). These orientations to learning, whether it is LOL or SOL, have implications on students' learning approaches ie whether they adopt a deep approach or surface approach learning, Marton (1975). In Part III I shall examine further these implications. At the present stage of the analysis the findings remain tentative and inconclusive. Examination of individual subjects in the case study in the light of these findings can further illustrate student learning in IL and the lecture. This will be the subject of Part III. The next section is a short bridge to put the reader into perspective before I enter into the case study in Part III.

8.7 A BRIDGE: THE FINDINGS SO FAR

The analysis of the data on the 225 students in the two institutions had resulted in specific findings related to student learning. Some of the most striking ones are mentioned here.

1. Both IL and the lecture were perceived to be adequate for the acquisition of knowledge, understanding and retention by different groups of students. However, what emerged from the data was the discrepancy between the students in conceptualising the terms 'knowledge', 'understanding' and 'retention'. For those who favoured IL these three aspects were related to their own effort at acquiring the knowledge and at understanding it which they indicated led to better retention. For those students who favoured the lecture, knowledge was what the lecturer, in his capacity as someone more knowledgeable, can explain to them. Similarly, understanding and retention was also the result of the lecturer's ability to present the materials clearly and interestingly.

The acquisition of knowledge, understanding and retention came about through different methods of study induced by the different
teaching methods. In IL the students 'interacted' directly with the ILM working more independently and with greater involvement thus resulting in more meaningful learning. In the case of the lecture, the students did not interact with the materials. Although students were expected to be stimulated to pursue more independent learning after the lecture, this was rarely done.

Understanding and retention were associated with learning in a pressure free environment in IL where the students felt a personal sense of commitment to their study. This, in turn, gave the students a sense of satisfaction and self-esteem.

2. Different groups of students also perceived IL and the lecture as useful for developing study methods such as 'working hard' and 'working efficiently', but again the students' interpretation of working hard and working efficiently differed. On the one hand students who favoured IL indicated that they worked hard because of the activities and deadlines they had to meet when working through ILM. Working hard in IL induced students to be systematic about their work and hence work more efficiently. The efficiency of work in IL was also perceived to be related to the self-effort they invested in their learning for understanding and retention. On the other hand the other group of students suggested that IL took up too much time and, therefore, was inefficient in that sense. It was also inefficient because of the amount of work they had to put in to understand the materials by themselves. They appear to associate working hard to completing lecture notes and hunting for materials in the library.

It was found that working hard did not correlate with choice of method. Students who chose IL, chose IL in spite of having to work hard, whereas students who chose the lecture, chose it because they perceived IL to be hard work.

3. The students perceived that it was possible to procrastinate in both methods, but they were inferring different types of procrastination. In IL procrastination was associated with
their tendency to put off work to the last minute but found that work had to be completed to meet deadlines and the expected tasks in the modules. Procrastination in the lecture was associated with leaving work and studying in the period prior to examinations. What was interesting was that procrastination in IL was seen to cause pressure but not in the lecture. Perhaps as some students suggested, they were used to 'piling up' lecture notes to near the exams.

In terms of investing time to work more hours outside class time, it appears that the students who favoured IL chose the method despite the fact that IL requires longer hours whereas those who chose the lecture did so because of the longer hours. The evidence points to the students' inclination to change their study method and habits to suit the new teaching mode, but it would need a longitudinal study to establish greater certainty of the contention. There is also evidence to indicate that students were not initially comfortable to learn by IL which they felt demanded more responsibility and commitment out of them which they were not used to in their normal learning context in the traditional system in Malaysia.

4. Two distinct orientations were visible in the approach to learning by the different groups in the two methods of teaching. The group of students who favoured IL seem to suggest a learning oriented to the SELF, while those students who favoured the lecture seem to orientate their learning to the LECTURERS and what he could do for them.

This last observation was made on the basis of the distribution of the responses which tended to conglomerate in the two areas - Lecturer Role and Attributes and Student Learning which was discussed earlier in section 8.6.

The interpretation I have assumed from the perceived data obviously cannot be held to be a consistent description of every student within the two distinct groups. In fact even within a group it would not be possible to demonstrate that all students were either SOL or LOL. It would be more important now to discover in what context in the lecture, for example, the learner becomes a lecturer-
oriented learner and in what context in IL he becomes a self-oriented learner.

This investigation requires a shift in research methodology from the previous global perspective to a more in-depth look at what was actually happening to students learning in the two teaching situations. In doing this, I am attempting to investigate whether finding No.4 has application in the real classroom situation and can be used to describe students differently when they work in the two different teaching modes.

8.8 PART III: A LOOK AT LEARNING ORIENTATIONS IN A CASE STUDY

8.8.1 Introduction

The results from the quantitative data were useful in throwing up the general perceptions of the students towards IL and the lecture, but it lacked considerable depth when used as a portrayal to depict what was actually happening within the classroom in which the innovation took place. Studying an innovation by an 'examination of an instance in action' could overcome the dilemma of what Walker (1980) said 'the personal integrity and authority of the researcher' as prime interpreter and of 'generalities', and instead

"the research will start from the natural language and description of natural observers..."

(Walker, 1974)

Examining student learning in the actual classroom in which the innovation was tried is an attempt at remaining as close to the subjects as possible.

8.8.2 Learning Orientations of Group 05 Students at STTI

Analysis of data

The case study with the twenty-five students in STTI formed the main part of the research work. The emphasis in this study was to explore in greater depth students' approach to learning in the two modes of teaching through in-depth individual interview. The interviews were recorded on tape and transcribed verbatim. However, quite often there was much in the transcripts which were not clear because of some unintelligible murmurings and repetitious expressions. In some cases it became necessary to omit these from the report of the data for the sake of clarity, but without changing the meaning. This was carried out very minimally. Appendix E6 demonstrates how this was done.
By the time the interviews were conducted each student had worked through at least three modules (six units) of IL materials. The questions asked in the interview were mainly related to the learning approach that the students used in IL and the lecture such as:

- How did you go about learning through the IL materials?
- How did you go about reading your IL materials?
- What did you do if you did not understand certain parts?
- Did you go back and forth in your reading? If so, why?
- How did you go about your learning in the lecture method?
- What did you do if your lecture notes were not complete?
- Did you do further references after your lectures? If not, why?

All the students were asked the same questions in a very open and semi-structured manner. Quite often students gave throwaway statements in which instance they were asked to elaborate or clarify. In the interview sessions, the students gave accounts of their learning approach introspectively on materials which they had previously read in IL situations and of the lecture method with which they had a lot of experience. 100% of the students (Appendix E8) indicated in response to Questionnaire 1 - Teaching and Learning in a Teacher Training College: a background survey (Q1. Background Information) (Appendix E7) that they had much experience with the lecture method. Very often in the interview the students digressed from the main points and being semi-structured as the interviews were, the digressions were important to pick up and follow through before I could draw the students back to the original point. So in reporting the relevant parts of the interviews, much information irrelevant to the discussion had to be weeded out and the relevant parts presented in a more flowing and intelligible form.

I shall be mainly concerned now with how the students in this group learned through IL and the lecture. I have also alluded to the fact that the general responses (section 8.6) appear to point to two distinct orientations to learning in IL and the lecture: one that is self-oriented and the other lecturer-oriented. The purpose of the analysis at this point is to investigate to what extent in the lecture or in IL, a student would either use a SOL or LOL or, indeed, both LOL and SOL in two teaching modes. This third type was apparent...
in some of the transcripts being studied.

8.8.2.1 Lecturer-oriented learning students (LOL)

Students adopting this approach in learning rely heavily on lecture notes and the lecturer's explanation. These students tended to show complete aversion to learning independently from self-instructional materials. This type of learning is closely related to the student's own personality and his view about the teaching and learning milieu such as the social and academic climate in the institution and their own motivation to study. The two examples presented are symptomatic of students who tended to be LOL students.

**Student 05 (T)**

I hate to read; from school I hated study that's why I did not take HSC because after MCE I quickly asked to enter Teacher Training Institution. It is easier in STTI, we are only given lectures and we just copy on the spot. It's easier than reading.

This student claimed to put very little effort into his study. He, in fact, suggested that it was easy to pass examinations in education even if he had not read because -

I remembered a little and previous knowledge helps ...the questions are also easy.

and he would prefer to read the ILM in the class:

I prefer if the lesson is done in class and ends there...but I don't like it if we have to read at home.

In spite of his protestations, he was aware of the value of IL but only in so far as they provided him with complete notes:

For me these modules can be helpful, it's better than the lecture system in terms of its complete notes but for me because of my lazy nature I prefer the lectures.

**Student 04 (T)**

Like most of the other students in the case study this student saw the examination as being primarily important -

Frankly speaking (her own words) from primary school till now we are forced to study for examinations...

and in the college exams are more important.

She saw the weakness of the system, the need to complete the syllabus, the problem of translating English into Malay and her own lazy and moody nature as influencing her to study in a particular way. She indicated that she made minimal references:

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*T. is used to refer to translated quotations
O4: Not for personal need but to pass exams... the lecturer says we must pass exams so we do; not on our own initiative.

I: How do you use the notes in your everyday study?
O4: I read overall...usually stack to near the exams... for me I'm used to it from school.

Like student 05, she described the advantages of IL comparing the way she learned in the two methods of teaching.

O4: If in lectures we are given notes after that he/she explains a little; we can either remember or not but like this we don't know what happens unless we read ourselves.

"...I have to force myself to open this sometimes, lazy keep aside...sometimes I force myself (her own words) I wake up from sleep sometimes I can't sleep, forced to open I do the module...because it must be up to date.

I: How do you go about reading it?
O4: I look for the activities first try them.

I: Why do you look at activities first?
O4: Because often the activities refer to the parts before it...so I see whether the activities are easy or difficult then I read the relevant parts.

I: Do you do this for all your other subjects?
O4: For the other subjects I think I read but I follow my sense. I say this will come out in the exams so I read. Not all, I do not read overall only those I consider important.

This student indicated if the subject was difficult she would resort to memorisation. Clearly, she was not motivated to work any harder than to just get by. And by learning through lectures not much time is wasted reading.

Student 04's attitude to IL was not completely one of aversion. There were signs that she felt she could learn as well from both methods, although at the beginning she felt it was a burden because it was something new. When her mood was right she said:

Once I read and can understand what I read I can motivate myself to read on.

However, in the end she made a stand about her feelings towards IL:

Somebody must tell what to do, I mean tell me what is it, I can understand it (referring to ILM) but I need somebody to tell me.

(Her own words in English)
8.8.2.2 Lecturer oriented + self-oriented learning students

(LOL + SOL)

There were students who preferred to receive some guidance from the lecturer first and then be left to pursue their own learning as the following case demonstrates.

Student 12

"The questions given...more of general knowledge...especially psychology of education...sometimes the test they give...when you study so hard and the next day you feel there is really nothing in the notes you know...so much so they never take it very hard...tomorrow is the test...to-day only we start really preparing."

In terms of vocation, this student also expressed a sense of security as did the others and gave this as a reason for her taking her studies quite lightly.

"In fact ever since I came to college I'm taking it quite lightly...Everybody is taking it so lightly...when you're really mugging your friends will come to you and say 'Why you study so hard?...if you get cemerland (distinction) I get biasa (pass) gaji sama (same pay)."

Nonetheless, this student had aspirations to pursue further studies at the university. In describing her approach to learning through IL she expressed a disinterest with the first three modules.

"...I'm very frank on what I wrote on my general comment. I feel that the first three A, B, and C I wasn't really keen at all...I feel that it's so boring...then there's so little explanation for us...but then I was telling myself until the third C I tell myself I must really do something about it. If I keep on having those type of attitudes it will get me nowhere...Some of my friends they're so interested some are really interested. I was telling myself if they're interested, there must be something that they've learned...there's really something lacking in me...always tend to dread when I come to modules. So I went back then, I took all out again A, B, and C...then I tell myself I must really read and follow the stages. So after that day I sort of get keen..."

When asked how differently she had approached her studying in the two teaching methods she said that in IL -

"...let's say for instance last time like after lectures I just put away my lecture notes chuck it aside...this way (IL) is very systematic...you ask yourself whether you really understand before you go to do the assignment...there'll be activities here...it helps a lot."
Of the lecture she said:

"I think it's totally different: for lectures we understand at that spot usually if you're really paying full attention... then copying down lectures, the minutes after that when you look through the notes you can remember well... whereas for this one you're on your own doing the modules and you've to read and reread before you can really proceed to the assignment... it (IL) really needs full concentration."

Further she expressed the desire for preliminary explanation before every module was given out.

"I think it is very useful very necessary that there should be some explanation or rather give us a guideline on what the module is going to be."

In the final analysis she felt she understood better in lectures because she found it more interesting -

"Some lecturers they're very good. They can really give, really explain well and you can remember the kind of gestures they make. So I really can absorb the fact."

but she also felt inclined to suggest that:

"I'm getting quite interested in this IL."

**Student 21**

Student 21 was basically a SOL student but adopted a LOL in the lecture because of his involvement in the social activities of the institution. He demonstrated signs of being aware of the effectiveness of studying through IL, but he could not, however, initially be motivated to adopt a SOL in IL because of his many extramural commitments.

Placed in a socially responsible position as president of the student body in STTI, he found he had very little time to spend studying through the ILM. Instead he indicated that the lectures were easier. The following are some quotes to illustrate the finding:

"I'm holding a post... these are responsibilities I have to do. If they (meaning his other committee members) don't come up with a helping hand then you have to do it all alone..."
What I feel is these modules...if you have the
time...when you're relax I think you can take it.
When you do not have the time then it becomes a
pressure over you...The only time I sat for the
module is late at night lah."

In his circumstances he found studying through the lecture
method easier although he was aware that studying the ILM
demanded studying more depth on his part.

"The lecturers may give you an idea what should be
done so we know that's what is expected of us so
its quite easy...but when we read the modules we
have to depend on our own thinking and maybe from
there we have to get our own meaning of what is
wanted."

He later explained that he did two of the IL modules under
pressure and being aware that he was 'not doing them well' he
was 'doing them all over again'.

"I think doing it all over again, I think I'll be
satisfied but from just reading it you know there's
a lot to be learned. So you know the first time
you didn't put an effort...that's why I did not
really feel satisfied because I was not really doing
what I have to do, that's why I was doing it all
over again."

8.8.2.3 Self-oriented learning students (SOL)

Students who adopt this type of learning will learn
despite the teacher and whatever method of teaching is
employed. But more often students who favoured IL were also
self-oriented in their learning. They saw their learning as
the result of their own effort and in an IL situation they found
the scope to apply this learning approach, while the lecture
system may present less opportunity for such learning to occur.
The following cases represent those students who are basically
SOL students but who with the lecture method tended to be LOL students
and when placed in an IL mode would adopt a SOL approach.

Student 03 (T)

03: ...frankly speaking I learn only to pass exams.
After a lecture to-day just look through on that
night just glance through, not memorise but near
exams then I memorise.

I: How did you learn through the modules?

03: I try to understand.

I: What do you mean by understand?
03: I try to understand the instructions that you are trying to say in the module.

I: How do you read through the modules?

03: I read page by page. If I don't understand I go back to the front. Then I try the activity, if I can't do the activity I go back again.

I: What is the reason for your not understanding? Is it the language?

03: Not the language perhaps I forget or the activity demands more explanation...then I go back.

'Student 14 (T) (SOL)'

The college expectation was again perceived to be 'a bit relax,' although examinations remained the motivating influence for studying for student 14. However, in her case, she also suggested a vocational motivation.

For me it's not only knowing how to state objectives but I feel later when I become a teacher, so what I teach I must know what I'm going to teach...What is more important than study for passing examinations these two years I feel it's more important to know what I'm going to apply when I teach.

She described her learning in the lecture in several ways.

(a)

Everyday I go to lectures because of attendance because attendance is very important.

(b)

I: What about the possibility of asking lecturer's questions on the spot?

14: I feel so far I ask very few questions in lectures because when I go to lectures I feel I understand I have no questions but then when given assignment that's the time when you have lots of questions you want to ask.

(c)

Personally I think lectures stimulate me to read and search for more understanding because not much covered in lectures. From my experience even if I don't understand it doesn't matter...I work harder...I cannot depend on notes only.

(d)

After the test vanish like bubbles.

Of learning through the modules she said:

I feel once I do the modules I have to understand them first before I can go to the second. After understanding the second then I go to the third...I can retain longer but like lectures I remember at that moment only...because listening is not remembering.
Clearly this student demonstrates the characteristics of a student who may apply a self-oriented learning in IL as well as in the lecture. Student 03, however, appears to be SOL in IL and LOL in the lecture. This may be subject to debate but further evidence in subsection 8.8.3 provides further basis for suggesting that the lecture may present an environment that nurtures students' predisposition to adopt a LOL approach.

8.8.2.4 Summary and Discussion

On the basis of the foregoing cases and reviewing all the transcripts, have led me to suggest that there are three orientations to student learning:

(a) Lecturer-oriented learning (LOL)
(b) Self-oriented learning (SOL)
(c) Lecturer + self-oriented learning (LOL + SOL)

These descriptions of student learning typified the Malaysian students. There is no evidence in Western literature that identifies student learning characteristics in terms of these orientations and it may be that they have application only for Malaysian students. Nonetheless, the finding has implications for more research to be conducted in the West to investigate if this phenomena also prevails among Western students.

The three learning orientations which evolved are described briefly below:

(a) Each orientation is characterised by distinctive characteristics in learning. The lecturer-oriented learner portrays a student who is very dependent on his lecturer and his lecture notes and in an IL situation demonstrates complete aversion to learning independently on ILM.
(b) The self-oriented learner appears to adopt learning patterns which conform to the method of teaching. In IL the student would tend to be self-oriented and in the lecture, lecturer-oriented. This type of student in IL would demonstrate a liking for and satisfaction for learning in that particular mode of teaching.
(c) Then there is the student who, in the IL situation perceived advantages for her learning, but still missed the lecturer's explanation and interesting delivery. This type of
student showed no aversion to IL. In fact the student may show an inclination to change her study approach given the right inducement eg some explanation before he or she is made to work independently on the modules.

What strikes me as very interesting is that there are other underlying factors which also tend to affect the students' learning orientation. These relate to other orientations that the students have such as academic motivation (assessment demands), vocational motivation and social orientation, which Laurillard (1978) identifies as learner orientations in her study.

It is apparent that the students who perceived the working milieu as 'not demanding' and 'easy' coupled with their own carefree personality, tended to view IL as a waste of time. They have found in the past that they need only to invest minimum time and effort to pass the examinations and to secure a good job in the teaching profession. However, the students who had a higher motivation for achievement and aspired to be more effective at their job later on in life, showed a tendency to work well independently with IL. But when put in the lecture situation they may or may not become lecturer-oriented.

The tendency was for most students to become lecturer-oriented as can be seen in the responses of some other students reported later on. Student 14 portrays a student capable of using SOL both in IL and the lecture, whereas student 03 appears to adopt LOL in the lecture situation and SOL in the IL situation.

There is another observation which I have made related to the approaches to learning that SOL and LOL students use. The student who adopted the SOL approach in IL appears to apply a 'deep approach' to learning. The same student in the lecture situation appears to apply a 'surface approach' learning, Marton (1975). Student 03 described her learning in terms of these 'deep level' and 'surface level' approach. In the lecture situation she tended to memorise her lecture notes in the period near the examinations, while with IL she had to understand the instructions provided in the modules to read back the materials thoroughly from page to page in order to acquire their real meaning before she could attempt the activities.
There is implication to suggest that the students who are self-oriented in their learning may tend to adopt either a deep or surface level approach with the different modes. The other implication is related to the effects of learner orientations (e.g., academic, vocational, social and personality) on the characteristics of learning whether LOL or SOL. The next subsection will investigate further the implications of these two aspects in student learning.

8.8.3 Learning Styles of Group 05 Students in STTI: SOL and LOL associated with Deep and Surface Level Learning

8.8.3.1 Introduction

I have so far described that the two methods of teaching can either induce a SOL or LOL approach in learning and that the student who is SOL in IL may assume the LOL approach, in the lecture situation. In adopting SOL he may also use a 'deep level' approach in learning and in using the LOL approach he may tend to use a 'surface level' approach in learning. Further evidence below suggests that students may use a 'deep level' approach in IL and a surface approach in the lecture. These have led me to surmise that the learning orientations of students (LOL or SOL) in IL and the lecture are more often than not related to different approaches of learning (deep level or surface level).

Self-oriented learning using 'deep level' approach

"Can add to my understanding by doing the exercises in the modules.

Can read at my own pace and may reread and attempt questions when I fully understand what I've read.

Sometimes I skim over the paragraph and answer the questions wrongly - it tells me to be more careful in my reading.

A lot of time is spent on reflecting.

IL is discovery.

I can always pause and stop at a point I don't understand in reading or go point to point, listening does not give me this privilege."

Lecturer-oriented learning using 'surface level' approach

"Sometimes I don't understand. Difficult to understand and can't be bothered to 'squeeze' my brain to understand it.

By giving lectures we usually just write without sometimes understanding or knowing what we write.

In listening we often do not listen for we are hearing only the lecturer's voice, taking down notes instead of trying to comprehend what is being said."
Lectures are more remembering the facts.
...no necessity for deep concentration need only listen
to explanation given and try to understand it, but
lesson goes in left ear and out the right sometimes
boring."

8.8.3.2 The relationship between SOL and LOL to learning approaches:
some examples

In the last part two main types of orientations in the
two modes of teaching have been identified: SOL students who
tend to use a 'deep' level approach while LOL students who tend
to use surface level approach. However, studying the verbatim
transcripts revealed that SOL students may use a 'deep' approach
in IL but a 'surface' approach in the lecture situation. The
learning approach of LOL students is more complex. Placed in
an IL situation some LOL students may become SOL students and use
either a 'deep' approach or a 'surface' approach to their learning
depending on the extent of the effects of other learner orienta-
tions. In the lecture situation these students will remain
LOL using 'surface' approach.

Another group of students were LOL students who remained
LOL students whatever the methods of teaching. These students
were completely averse to IL as a teaching method and in their
reaction showed mild aggression; such as standing up in class
to protest against being taught by IL. Each of the above types
of learner will now be illustrated by a few examples.
(a) Examples of self-oriented learners using deep level
approach in IL and surface level approach in the lecture

Student 10 (SOL)
I: "Do you think you are the type of person who wants to
do your best?
10: Usually, but sometimes I just tend to be lazy but
usually I tried my very best. Sometimes you find
that you tried so hard then when you see people just
taking it so easy, you say why waste your time, you
might as well relax a bit.
I: Are you telling me that you think you are influenced
by the people around you and how they behave?
10: I can't deny that I am not influenced at all but I
suppose let's say on a range of one to ten maybe 3%
or 3½% or sometimes 4% never get 5% because even
even though whatever people no doubt affects you but
I realise that whatever I do is very important, I should not let others worry me."

This student was conscious that she was affected by the general laissez faire climate in the classroom and the institution but she, herself, still maintained considerable initiative (which she later expressed was 'above moderate') and had the common sense to behave in a manner beneficial to herself. This type of student in an IL situation will take the opportunity to adopt a learning approach which is congruent to her own motivation and use deep level learning. This is evident in the way she described her approach to learning using IL.

Student 10 described that she was more careful and paid more attention when studying through the IL texts and that IL depended on how well 'you understand the thing' and 'know what it expects from you'. She also read the text in more detail first reading it once through and then 'breaking into parts' to read' intensively'. Here are some quotes to illustrate student 10's approach to learning the ILM.

I: "Have you learned differently in the two methods of teaching?

10: I find it sort of makes me conscious of my work, let's say when I read the study guide I know that I have to read them through, I can't bluff off the answers because if I don't read I cannot write anything you see. I mean no point looking at the answers at the back, it doesn't help me so I really have to go through every word you know from the study guide from the overview to the end to find out. But I can tell when I came here I haven't been in the library many times...I was very interested in literature work and sometimes the classmate they don't share the same things as you. When you find that you like this poetry so beautiful you want to share with a friend and then you want to tell or discuss they don't share the same with you...you find you can't talk if you open your mouth they say you are bragging...I mean you dare not get so high."

Clearly this student was the kind of student who Robert White (1955, in Ericksen 1976) described as having 'competence motivation'. She epitomises a person who has intellectual curiosity but it had to be quelled under pressure of the milieu. However, when this intellectual curiosity finds satisfaction in a teaching/learning situation conducive to her personal development by involving her in her own learning, it enables the student to react towards the achievement of
self-esteem which was evident in her pleasure over observed success in working through IL materials quoted further on in the chapter. It is said that:

"The satisfaction of this motive is realised during the process of achieving mastery and resolving one's intellectual curiosity. Self-esteem is enhanced by demonstrating to oneself the ability to interact with and to cope with a personal, social, or educational problem. The enthusiasm shown by students who seek the opportunity for independent study illustrates the driving power of intellectual curiosity, the intensity and the effectiveness of students when they become involved."

Ericksen, 1976, p. 70

Student 10 further alluded to her working pattern as being influenced by other factors in the academic milieu.

I: "So you are saying that the way you work, the way you study was also influenced by the type of lecturer you have?

10: It's true, but then when you come for exams I know that we shouldn't be so personal. Even if we don't like the lecturer in the end the mark or whatever low grades are mine, I am going to bear it. Nobody bothers about you so why let people affect you... I feel quite strongly about that (ie about lecturers expectation as affecting the way one studies). I like English. I'm quite good in my English. If I give up shoddy work it will not be what they expect. I feel I failed them because they were expecting the good student to give good work...I try my best because I find that in the end you can't escape the fact but still some of the marks like that matter to a lot of students. Whether you are a good or poor student you really want to try your best but there are exceptions of course."

The same student also demonstrated a vocational motivation:

10: "I really like teaching but I thought maybe I can go to university and come out and be a higher grade teacher...I can't think of myself...I can't bear to think I might be stuck in the same position even if I don't go to varsity. I suppose I will want to major or advance in other courses."

Student 10 showed certain attributes of being basically a responsible, hardworking and motivated student. She had found herself in a milieu which was rather easy going and this conflicted with her own intellect. She had found the demand of the institution to be not rigid and, therefore, saw no inducement to work so hard as she had expressed. She was asked why she said her initiative was only 7 out of 10. She answered:
"More of the demand (she meant institutional demand) because you find you read so much they never really tax your brain...you just feel like you don't want to read so much...I know deep down inside that it is not good."

She went on to describe her learning from IL which suggests a 'deep level' approach.

I: "How do you perceive about learning this way?

10: ... for myself what's it's all about...I find sometimes when I was doing my reading I mean like after a day of heavy work, I just read and read I just simply read you know as long as I just simply read you know as long as I turned the pages but then when I come to do the question I find that I don't understand and then I know I've been dreaming away. I have not been fully paying attention to what I read, I didn't understand then so I have to make an effort to turn back from where I missed and then read again then understand, then only I can attempt the questions.

I: How do you feel about the expectations the method puts on you?

10: I find that this is very individualised because it depends on how well you understand the thing.

I: When you say understand what do you mean by the word understand?

10: Like how well you read this thing you know, you know what it expects from you what it demands from you like answering a question what it demands from you, what it demands from you exactly I mean I could also answer questions, anybody can answer but then in the answer also there are very good answers and just average answers or some good short answers when I read this I know that it's really my own effort whatever I write down, what I understand and then I can answer the question I meet the demand of the question then I find there is success.

I: How did you go about reading your materials?

10: Look through the whole thing then I find as I read through...some paragraphs are so clear. Then I just put a mark there because I know I have to comment on it later but usually my understanding is quite poor at first reading just go through to warm up. I find that certain passages quite difficult. I don't worry about that because it was first reading. I break it in parts...I mean really read intensively."

In the lecture, on the other hand, she tended to use 'surface level' learning as the following quotes demonstrate:

I: "Put in a lecture situation, don't you do the same ie read with attention when you are reading through your lecture notes?
10: Actually I don't think so. We just take notes down and then I mean we seldom have a test, it is very rare you know, so we don't really read the lecture notes.

I: What do you do with the lecture notes?

10: In fact after copying we just keep it until well the lecturer says OK I'm going to give a test. So we must pick up and read otherwise we just keep it until the main exam or we get assignment... lecture notes...I don't think I read them so thoroughly even if we have assignment on that.

I: When you are given assignment what do you do?

10: Usually we don't really refer to our notes.

I: So what do you do?

10: I may look up the books because probably the question is a difficult one and I find that whatever I take in the lecture it is not sufficient. On the other hand I might not look up if I know I've got a rough idea I got... during the lecture those words which I didn't take down but I understood them and then I could just apply just do a simple one.

It would appear as the following quote indicates, that in the lecture situation students tended to feel that they had a good grasp of the subject matter but this was not the case. Student 10, like another student mentioned in an earlier page, made this observation about her understanding in IL. This again appears to indicate that a 'deep level' learning process was taking place in IL for this student.

I: "Before you were doing this, what was your understanding at that time before you did the module?"

10: I felt that I understood what he (the lecturer) said but I didn't realise how much I didn't understand. Here because you really do the components break it up, I find that whatever I was doing for first module this thing I said very true and then I find myself, I mean understand deeply, more deep, more detailed. Then you realise that whatever the lecturer said sometimes you just take as a passing statement you realise that what he said really is essential in a way you know."

The extracts from the transcripts of student 10 was necessarily long to show the direction of the interview which could not be effectively condensed. The subsequent quotes would present a more abbreviated example of students' learning orientation and the approaches used.
Student 06 (SOL)

This student was very motivated, enjoyed self-study, had learned a language by himself, had undertaken a correspondence course with success and had some working experience. He said that he was interested in self-study and did not depend entirely on the lectures.

I: "How important is it for them (lecturers) to give very full lecture notes?

06: Not very important maybe we can say that half of the time during lecture hours they lecture and the other half they may relate lecture with surroundings in our everyday life. Then the lecturer may say OK you go and do the required reference and ask them to do an assignment that will be much more what shall I say they gain some information from the lectures and also they work on their own. Very seldom people will make use of this library in MPIK (STT). The only time you can see the busiest time is a few weeks before the exams when they go and rush for the reference books and the past year's questions.

Like student 10, he was also of the opinion that students did not make full use of the library. However, the comment was depersonalised and he indicated that as far as he was concerned he made a lot of references himself. He was also sometimes led to feel the futility of working too hard while his friends enjoyed themselves, but he said he was able to rationalise as the following quote suggests.

I: "What else does it (IL) need apart from self-discipline?

06: Once self-discipline comes then persistence, faith in you, in me and endurance in the sense that there maybe a time that you are in high spirits to learn there may be a time you feel so low and you know dumb and say what's the point of me sitting down here studying and studying while my friends are there enjoying themselves. So you are influenced actually that is very bad you know because we don't reason ourselves. The real tools are here (pointing to his brain) while you don't sharpen your tools here you go in and join with them then you may fail. Then principles come in me it makes me think."

Here student 06 was making reference to his self-disciplined nature which like student 10 sometimes tended to be influenced by the climate in his classroom. This student was a SOL learner and there was evidence that in the lecture he had used the 'surface' approach. The quote below reflects his learning approach.
In the lecture student 06 tended to use a 'surface' approach.

I: "Have you studied differently in the two different methods?

06: Lecturers they give us notes and what I do is I read the notes then if there are assignments I just refer to the notes.

I: You were saying that you read the notes after the lecture and then what?

06: Mug up certain important facts you know which we have to really remember so I have to mug up."

Whereas in IL he tended to use deep level approach:

I: "How do you go about reading through the modules?

06: I was reading module C. It's a habit for me you know if I really can't understand one thing I'll go right behind for module A, B and come to C again. I really see where the mistake lies...I keep on reading this I read and read until there comes a time when the mind clicks there is something wrong there, there is something important and then I refer back. There is something important here I didn't realise that there is some relevance to this when I came here this speaks something about that so I have to think back."

Student 18 (SOL)

Again like students 10 and 06, student 18 perceived that she lacked incentive to strive in her institution,

"Last time when we were in Form 6 or Form 5 it was different. We wanted to do well because you know that it determines our future you see but whereas like for teacher training I mean almost everybody gets a pass you know and anyone really failing unless it's a real hopeless case. Usually people said if you get C so what if we've C or A it makes no difference, same salary but the thing I feel is personal satisfaction even though you know it's a C you passed but you always try for the A you know."

but maintains a sense of motivation as expressed in the last line and which she described was 'above moderate'. Her extrinsic motivation for academic and vocational success was again obvious in what she later said:

18: "Actually I was planning to sit for my HSC again you know maybe I have better principle so I could apply for off campus...

I: What would be the reason if you apply for USM off campus course?

18: I think again it comes to personal satisfaction actually our HSC that day was quite easy but because I did last minute so I didn't do well. Seeing my friends all going to U sometimes you feel envious. If they can do it why can't I you know."
As in the case of student 10, this student also tended to display a learning orientation quite distinct in the two modes of teaching.

**In the lecture**

Although she was very much aware that in the lecture she felt a sense of responsibility towards her own learning:

"The lecturer only gave certain topic...just give you the skeleton of it and you fill the flesh...the responsibility is on us to do research on it.

and yet she was prone to adopt LOL learning in which

"Lectures usually we just chuck it aside until when we have a test or when an exam is approaching then we really start to mug up. Other than that we don't really do any reading after lectures or anything like this. I think it applies the same to almost everybody."

**In IL**

Student 18 describes a different orientation to learning which is more self-oriented using a 'deep level' approach.

18: "I think I read it (IL) at one go but let's say if I come to a certain passage that I don't quite understand I will read it until I really get it then only I will go on to the next one when I read through it I really have to make sure I know what it means because it's important that we start with good understanding otherwise you will face difficulties with later modules."

However, when she found it difficult and could not really understand certain parts she had to resort to 'surface' level learning.

18: "For certain parts I really understand very well but for certain parts sometimes you read two or three times I still don't get it so you just give up...go on to the next, we just get the gist of it sometimes you don't really get the full meaning of it."

(b) **Examples of LOL students using 'surface level' approach in IL and surface level approach in the lecture**

**Student 17 (LOL)**

This student did not see the need to do as well in his institution but he realised the importance of passing exams.

"Actually we don't need to do so well. Some people say even if you have a C or you have an A, still the same pay. Because you do this (IL) now even if you don't understand when time comes for exams since everything is exam orientated then we will really start studying."
He indicated that interest played an important part in his learning and that although he found IL interesting he was not sufficiently interested in it because IL involved extensive reading.

17: "English literature is something as story its more interesting. So that one I did with real interest. Not like this but this one is interesting activities are concerned.

I: But you say its interesting but it still can't motivate you?

17: It does motivate me but the problem is patience. I just cannot go on reading and reading and reading.

He reflected a LOI approach using 'surface level' in learning in the context of both teaching methods.

In the lecture

I: "Tell me something about how you learn through the lectures.

17: Same as module also in one sense the straying of the mind. I just listen and the lecturer will be thinking that I'm really listening sometimes I mean distraction.

I: Do you feel this is an extra burden?

17: Yes, because its new. We're not used to it. Lectures in the timetable have been allotted so we go and sit there, you listen take down notes, you go check the notes somewhere, wait until exam."

In IL

17: "I just read through and then the activities I just do but I don't put stress, lazy.

I: Is it just for this that you...?

17: If I can do it faster, I'll do it faster... I don't think I've much patience... I just go once through. When I'm reading there's one problem when I'm reading my mind goes out somewhere. I don't read thoroughly. I don't grasp what I read. Even if I think of something else I just keep reading there's a problem so when it comes to the activity and then I cannot understand that time I go back. I just go back, see through and try and connect and do the activity."

This student displayed an indifferent attitude towards his learning, although he was concerned about passing examinations with as little effort as possible. He appeared to be very lecturer-oriented and in both IL and the lecture modes tended to use 'surface' approach to his learning. Interestingly, when asked whether he would choose to learn by IL again, he
chose IL and the reason being he said:

"Because this gives me a change to relax when I want to and do my work when I want to in that one week."

Student 16 (LOL)

This student appears to be motivated academically and had the intention to repeat his HSC and enter the university but perhaps the peer influence was stronger. In his first year when he felt lazy, he said he would:

"Do nothing, hang around college or go out...I'm too playful or too active in peer group. Follow them here and there, tag along, sort of mixed up..."

But in the second year he had a different peer group which was hardworking and "complete everything and it sort of influences me also". Perhaps again the student's perception to the expectation of the institution had a significant effect on the way he approached his study. Student 16 was led by his seniors to perceive that in his college he did not have to study hard to pass the exams, but soon realised after the first year exam that this was a dumb thing...you need to study if you want to pass the exams'. This student had at first internalised perceptions and social conduct that had affected his learning in the first year of his two-year study. In the second year he claimed to hold different perceptions and values. That this may probably be so, could be observed from his reaction to IL which was not one of complete aversion nor total commitment. In the lecture system he was lecturer-oriented. In IL he showed signs of favouring IL but used surface level approach.

Learning in the lecture

I: "Can you tell me whether these two methods of teaching have influenced you to study differently?

16: Lecture method, most of the time the lecturer explains so it's sort of doesn't give me a lot of chance to refer to certain things because we find that whatever they give is enough...In lectures I just go sit down and listen to the lectures that it's just a little boring...Lectures are given notes and explained...I have the tendency of stacking up lectures when its exam time then I go out.

I: Do you read a lot for your assignment?

16: Not actually. I don't say I read a lot. We'll just get it from the notes."
He found the lecture safe:

16: "Most of my time and most of my schooldays I've been getting lectures from teachers or lecturers, so I'm used to the lecture methods. It's safe but then it's a feeling that you're spoonfed."

Learning in IL

Student 16 showed a mixture of feelings and at one point made contradictory remarks.

"The modules it explains everything so doesn't need much references...I find it's easier to understand the modules...forces of learning and remembering but if I'm lazy at the time, tired, I don't feel like going through whereas lectures we have to attend them and keep up...This module at times you feel you are all alone...don't have to look at the activities. It (modules) explains but difficult for me to understand...This is completely different because there is no, not a person standing in front there."

Then again a contradiction:

"...it (IL) helps build up my confidence where I can I mean do something without being asked to. Before this I had thought that I can't carry out a certain thing without the help of somebody. Then I found it difficult to do certain things but then after completing the module I did most of it by myself I found that I have confidence in doing certain things."

Although there were signs that he found studying through IL advantageous, he was still using a 'surface' approach in learning through the modules as the following quotes demonstrate:

16: "I go paragraph by paragraph. Whenever I don't understand a certain part I read through again two times.

I: Did you attempt the activities?

16: Most of the activities whereas some activities I left out.

I: Why did you leave them out?

16: Due to you know being lazy sort of. I understand what I was supposed to do and I thought it was quite easy, can do it another time."

Student 19 (LOL)

This student was lecturer-oriented so that in IL, he demonstrated clearly his aversion to it. He was highly motivated by examinations and used his lecture notes a crutch, although he said that he was not consistent in reading the lecture notes.
"But completing the notes I do it. It's important to have the notes, doesn't matter whether you read or not... important to have the notes. Work will stack up, stack up, stack up and then exams come... run here run there get hold of notes that's going to be a problem."

He did not actually enjoy making reference work but found he had to do it so he would go ahead with it. There was also evidence that he, like student 17, preferred to do as little work as possible just to get by in examination. He too felt that it was:

"Not that demanding. They're (institution) can't actually specifically say its really demanding. Everybody knows you know that examinations are the point I think like judgment day you know that is where you either fall or you either go up that's all."

and further:

"Maybe it will be better if we could do it in class together and finish it in class well rather than taking it home... finishing it in the class itself then get explanation okay you help us. Do it there and then."

This student also seems to me to demonstrate conflicting feelings about IL. He admitted enjoying the first couple of modules and there was ample evidence that he found IL helpful to his learning when he said:

"The module is okay... tend to read and then want to find out more you see, you see want to find out what's in it, could be something interesting."

He realised that IL can help retention:

"I think I still agree to that (IL can help retention) because you (stressed) are reading it... it is direct you know whereas in lectures you may take the notes but whether you're reading them or not is another case."

but finally stated that he was interested only "then" at first but later indicated a tendency to lose interest.

"Then I was interested... well actually I think I've got a tendency to lose interest."

He attributed his loss of interest to the lack of pressure.

"Your leniency that you give us time to prepare five or six days so you tend to become lazy."

then to a psychological feeling he had:

"Maybe this (IL) could be affecting me psychologically this module thing... I feel it's not enough for my exams."
and then to a hint that he lacked consistency in work:

"It all depends on, as you know, people who take it. The modules are good if you're consistent with it if you work consistently."

It was apparent that he did not know exactly how he felt. When I asked him what he did with his lecture notes he commented:

"Lecture - usually I just go back and look through ...whereas learning through modules (long silence) I don't know actually. I'm quite confused."

This student clearly demonstrated a lecturer-oriented learning using a surface approach in studying in the two modes of teaching as can be seen in the quotes below.

**Learning in the lecture**

"Usually the lecturer explains (stressed) then gives lecture notes. Then he explains (stressed) whereas modules we have to look back and try to read it and try to understand, we don't have any brief explanation."

**Learning through IL**

19: "First I just glance through, get an idea of it you know...and I have the tendency to look for important topics you know I mean headlines.

I: How did you cope with the activities?

19: I think not really."

### 8.9 SUMMARY AND DISCUSSION

The mechanism of student learning from the lecture and IL can be interpreted from the analysis of the series of cases previously investigated. The students exhibited different learning orientations the approaches in the different teaching contexts, but it is not as simple as this. Other factors were found to be operating which have relationships with the teaching contexts to produce student learning. These have evolved from the students' spontaneous self-descriptions of their working methods or in response to my questions in the interview.

The main focus of the study is on student learning from IL and the lecture so a logical approach to a summary would be to start to look at student learning in terms of the teaching contexts and then to examine how other factors were all operating to influence student learning. The following diagrams merely represent an explicit summary of the research findings so far. This would form the basis for
developing more comprehensive models in Chapter 12 which I hope can present a more holistic picture of the process of student learning from the lecture and IL within an academic structure in the Malaysian context.

I will now summarise the findings thus far as they are synthesised in the two diagrams in Fig. 8.3(a) and (b). In the diagrams the directional lines should be interpreted as 'influences'.

(a) In the lecture situation (Diagram 8.3(a)) students were found to adopt a LOL approach using surface level learning processing approach. However, depending on the strength of the students intrinsic motivation, some students may tend to adopt a SOL using deep approach irrespective of what the learning task requires. The evidence in this study of Malaysian students, however, reflects that of a group who were more extrinsically motivated so that whatever little intrinsic motivation they possessed became couched in their perception of the demands of the institution in terms of assessment requirement. There was ample evidence that the students did not perceive the learning tasks in the lecture situation as demanding. In fact, they perceived the entire institutional milieu as relaxing and non-demanding and that passing exams was not difficult aside from memorising some important facts from the lectures. Laurillard (1978) suggests that if the task is seen to require reproductive thinking or memorising, then the extrinsically oriented students tend to concentrate on this taking a 'surface' level approach to the task. In most cases in the study, SOL students tended to become LOL students using a surface level learning. Consequently, when students tended to adopt a LOL approach, they also tended to develop study methods and habits congruent to that approach, eg LOL students had been found to 'pile' their lecture notes; study at the last minute before examinations; preferred to listen and remember only the most relevant points.

In the diagram, learner orientation ie his intrinsic, extrinsic and social orientations are seen to affect the learning orientations and approaches of the students and, consequently, their study methods by the directional lines leading to these.
Fig. 6.3(a) The Effect Of The Lecture On Student Learning

Fig. 6.3(b) The Effect Of IL On Student Learning
The same forces or factors i.e., learner orientations and perceptions of the teaching and learning milieu operate on student learning in an IL situation represented diagrammatically in Fig. 8.3(b). But the teaching mode presents a learning situation more conducive to the development of SOL. Self-oriented learners find in IL a learning situation more congruent with their intellectual needs and intrinsic motivation i.e., desire for self-learning, satisfaction and self-esteem. The evidence in the cases studied suggest that such learners tend to adopt a deep level processing in their learning and, consequently, develop study methods which are characteristically different from their study method in the lecture system. They read more and use greater self-effort at reflecting and understanding what they read.

The LOL students who are in the habit of being dependent on the lecturer when placed in an IL mode, may tend to adopt a SOL approach using either a surface or deep level processing. The extent to which such students are willing to become SOL and hence use deep level approach, would depend on the strength of the other influences. The evidence is quite substantial to suggest that LOL students are inclined to change their study approach to suit the demands of the teaching mode. In IL, the demand is for reasonably full understanding on the part of the student. As Laurillard (1978) suggests, students make a strategic decision about their approach to the subject or, in this case, to the demands of the teaching mode. They may take an active role in their learning and integrate the various parts if they see the requirements to be one of full understanding, or they may take a more passive role concentrating only on reproducing what is necessary if they perceive the teaching milieu to demand only that.

Placing students in IL mode, however, does not ensure that every student enjoys or likes learning that way. In the study there is a small residue of students who remain LOL students whatever the method. Such students show strong social orientations, little or no intrinsic motivation. This has implications for
the organisation of teaching strategies in the teaching and learning milieu in the Malaysian context. Perhaps the lecture must remain an important teaching strategy for these students, but the nature and the orientation of the lecture can be improved to generate and stimulate more independence and involvement of students in their learning. Chapters 9 and 12 provide some suggestions as to how this can be done.

Two other groups of students are also perceived to need stimulation in their learning. In the two diagrams, the group in need of immediate and urgent help would be those students who are potential SOL - in the lecture there is a need to prevent the SOL students from falling behind to become LOL learners - while in IL the LOL students may need more help to become SOL learners. Perhaps the main justification for trying out new innovative teaching methods should be to help those very students who are averse to change. It may be perceived that in adopting different learning orientations, the students had demonstrated a potential change in study methods and habits which I believe are essential prerequisites if students are to improve their learning. This aspect is further developed in Chapter 12, Model 3 p 12:11. However, it may be pointed out that a short study such as this one could not hope to change the conditioned study methods of students assimilated over a number of years. A longitudinal study would be a step in the right direction towards achieving this.
9.1 INTRODUCTION

One of the perceived advantages of the lecture which is not found, or found minimally, in Individualised Learning (IL) as it was used in this study, is contact with the lecturer. This was very apparent in the responses of students who favoured the lecture (Table 8. 8 (b) p. 8:43. Among the most recurrent comments made about the advantages of the lecture were related to the direct relationship between the student and the lecturer, e.g.

Lecturer provides explanation,
The lecturer is approachable,
Interaction with the lecturer,
The lecturer gives guidance, etc.

Some quotes below may provide further illumination:

"I have more opportunity to discuss the matter or the subject or topics which I may not understand during lectures."

(08 22 8 1)

"In MPIK we can only see the lecturers during lecture. If, for example, I have a problem concerning IL I can only ask the lecturers during lecture. This is because we seldom see the lecturers around in the afternoon and in the morning when the lecturers are around we have other lessons to attend."

(08 02 8 1)

55:06 "Still feel that there is a space you know gap between the lecturer and the student."

Student 22 stated that she liked the opportunity of discussing problems with lecturers during the lectures. Student 02 raised the
concern about the inaccessibility of the lecturer in the lecture situation, while Student 06, although preferring IL, still felt that there was a 'distance' between the lecturer and himself in IL.

There was also some evidence that students, learning through IL, were missing the interaction with their peer group. This was more apparent at the STTI where the normal lecture classes were small and some amount of interaction prevailed. However, this was not the case with FEUM students where lectures were held with large groups. In this case there was less opportunity for interaction either between the lecturer and students or between students and students.

Some students described their learning in IL as devoid of competition and in IL they felt there was little opportunity of openly comparing their work with that of their friends.

28:05 I don't know whether what I do is good or bad so there is no comparison with friends except with my partner but I don't know with other friends, I don't know my standard.

72:12 "I prefer the class competitive...I'm sort of encouraged to read over and then you have the attitude...the last lecture I must really try to answer again. I mean it encourages you that way."

99:03 "In the lectures we learn together among many people this is more fun."

Competition in a learning situation as expressed by Student 12 was also a feature that could interest students to read.

Further evidence that students preferred to work with friends was noted in (Table 8.3(a) p.8:8 ) where 56% of the total population of students indicated that they preferred to work in groups rather than alone (26.2%).

On the basis of the substantial evidence from the literature (Brewer, 1979; Manwaring, 1977; Collier, 1980; Bramley, 1979), the pilot study and the analysis of the data in Chapter 8, I would suggest that students generally prefer a teaching situation where they can benefit from closer contact with the lecturer as well as learn in an interactive learning situation with their peers. Among the LOL students, the absence of contact with the lecturer in IL was more acutely felt. This lack of contact with the lecturer could have increased the sense of isolation experienced by the students. While IL was perceived quite favourably by a greater proportion of the student population, one cannot ignore the fact that IL cannot satisfy everybody as individuals are all different.
Hence one of the emerging aims of this study is also to investi-
gate to what extent IL can be adapted to meet the needs and different
attributes of Malaysian students, particularly the LOL students.

It is the purpose of this chapter to investigate two other
components of teaching methods which may be used with IL within the
physical and timetable constraints of teaching in the Malaysian
context. Section 9.2 will describe these two components and how they
may be used with IL to alleviate some of the perceived limitations of
IL. The experiment is again located in a realistic setting with the
same group of students at STTI.

9.2 INDIVIDUALISED LEARNING WITH INDIVIDUAL TUTORIAL (ILIT) AND
INDIVIDUALISED LEARNING WITH GROUP INTERACTION TASK (ILGIT):
A TEACHING PROCEDURE DESCRIBED

The proposed format of ILIT and ILGIT is as follows. During a
course based on individualised learning, students may work independently
on the ILM. At the same time individual tutorial (IT) would be
available during class-time for those requiring it. So while some
students can continue to work on the ILM in the normal classroom
periods, the lecturer or tutor will avail himself/herself to other
individual students who need help, either on matters related to the
ILM themselves or to the activities and assignments. At other times
the normal class or tutorial times may be used for group interaction
tasks (GIT) sessions in which students work in smaller groups of no
more than five persons in one group, either to discuss set tasks or to
discuss assignments which have previously been done and which have
been exchanged among the groups. The frequency of either IT or GIT
will be very much a matter for individual lecturers to decide.

The method of individualised learning with IT and individualised
learning with GITs which I have used in the study, is shown by a
diagrammatic representation in Fig. 9.1 (p. 9:5).

When the students started to study through Modules A, B and C,
they were encouraged to work with a partner if they wished during the
class hour. During this time for six periods I made myself available
to the students for individual tutorials. This is where my method
differed from the tutorial in the Keller Plan in which contact with the
tutor is mainly in connection with test corrections and not before the test. In the diagram this process (ILIT) is indicated by notations (a), (b), (c), (d), (e) and (f). When some students came to me at (f) they may have completed their assignments. After the IT these students had a choice of either handing in their assignments as they had done them or redoing them and then handing them in at (k). These assignments went towards part of their course work grades. When the students started to work on Module D and the subsequent Modules F and G, (Module E was optional) I introduced a different intervention: GIT. As I did before, the students were handed out their modules one at a time. Each was followed by two tutorial sessions. A different approach was taken this time. Firstly, on the day I distributed the modules I gave the students a ten minute advance organiser (Ausubel, in Novak, 1977) to introduce students to the basic concepts and thematic emphasis of the modules. Experience with Modules A, B and C and the students' comments at the individual interviews, gave me the impression that the students generally preferred some explanation before they worked independently on the ILM. As my study was grounded in reality, I felt it was essential for me to accept the cue and to provide the students with a learning environment that can induce them to study more effectively through the ILM.

Secondly, I prepared set tasks based on the contents of the modules which were printed and handed out on the days set for the GIT sessions eg on one occasion the set task was based on the contents of Module B. More exercises similar to the activities in that module were devised to be used in GIT to test their understanding and application of what they had learned through Module B. An example of this GIT is set out in Appendix Fl. p. 504.

On another occasion the GIT was based on the prepared assignments required of the module which the students then exchanged. Each student had constructed three types of objective test questions in Module F. Within the subgroups students were then given set tasks again in the printed form with instructions to examine and analyse the quality of the questions prepared. After about 30 minutes of discussion, each representative appointed in the subgroups was to make notes and each of these representatives was then to report to the whole class the results of their little group sessions. This
Fig. 9.1 Diagram To Show Features of ILIT And ILGIT In the Study
was similar to the skill development sessions that Black (1968 in Elton 1979) organised (see also Lopez and Elton, 1979; Cryer and Manwaring, 1977). Besides, this kind of interactive or collaborative learning which focuses on students commenting on each other's work, is similar to what Abercrombie and Terry regard as 'peer tutoring' (Abercrombie and Terry, 1978). The GITs were closely structured in terms of the time allocation and tasks they had to perform. Altogether there were four such GITs and each of them was always related to what the students were expected to have learned from the IL modules.

Notations (a), (b), (c), (d), (e) or (g) (or both (e) and (g)), (h) and (j) in Fig. 9.1 represent the process of ILGIT. After GIT the students may either complete their tasks individually (1), or if there were assignments then some may wish to hand them in at (m) or redo them (1).

All assignments and set tasks went towards their course grades as these were the requirements of the institution and together with the marks from the final examinations, these contributed towards the assessment of the students in this course. As indicated in the diagram, the output of the process is the product of student learning measurable in terms of their performance in the examination as well as by the feedback which the students themselves provided at the end of the course. In this study I am concerned with the latter in which students described their perceptions towards the process of learning through ILIT and ILGIT. The remaining part of Chapter 9 will report the students' perceptions towards ILIT and ILGIT in terms of their learning.

9.3 PROCEDURE FOR DATA COLLECTION AND ANALYSIS OF DATA

Students' reactions to ILIT and ILGIT were elicited by means of interviews and a questionnaire (Appendix F2). Some responses towards ILIT came up in the individual interviews which were conducted after Module C (discussed in Chapter 8), and these are noted in the present analysis. Out of the seven recordings of GIT and the seven recordings of the interviews that followed these, I transcribed verbatim ten of the recordings, and on the basis of the relevant protocols that emerged, I devised a questionnaire using
Likert 5 point Scale (Oppenheim, 1966). This questionnaire was administered to all twenty five students.

The quantitative data from the questionnaire was analysed using the SPSS (Statistical Packages for the Social Science).

In the discussion of the results in sections 9.4 and 9.5, I shall report the results of the quantitative analysis, but greater focus will be devoted to the qualitative data using the verbatim transcripts from interviews. Every GIT was followed by an interview with the students either on the same day or within 24 hours of the activity. The first GIT was mainly an exercise to expose the students to small group teaching and to the methodological approach of using the tape recorder to record the proceedings of at least one of the groups in an interactive learning situation. Hence the purpose of the first GIT session was not for collecting data. The exercise was very useful, however, in giving methodological directions for the subsequent research procedure that I adopted.

Initially, after the first GIT session, I interviewed one group of students whose interaction session was tape recorded, each individually, to elicit their reaction to the entire process of ILGIT. I had intended to play back the tape recorded activity to be used as a stimulated recall at the interview even at this initial stage, but the recording was of very poor quality and the voices came through indistinctly. Hence the idea of an interview based on stimulated recall at these first interviews was abandoned. Nonetheless, interviews were held with each of the four students whose interactive session was recorded and these were transcribed verbatim.

An important finding that came out of this trial run was that the students did not open up sufficiently when interviewed individually. It was as if they were very cautious about what they said. For this reason I decided to conduct the subsequent interviews in groups. I also used two tape recorders for each session in the subsequent activities and ensured, by physically rearranging the students (eg placing the groups recorded in the far corners of the classroom), that better recordings of the GIT sessions could be made. Altogether seven recordings were made of the four GIT sessions. They were as follows in Fig. 9.2:
<table>
<thead>
<tr>
<th>Date of GIT</th>
<th>GIT Sessions &amp; Topics &amp; related IL Modules</th>
<th>No. of groups recorded x No. of students</th>
<th>Interview Indiv/group &amp; Date</th>
<th>Stimulated Recall</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 July 1981</td>
<td>GIT 1: Objectives (Module A, B, C)</td>
<td>1 x 4 students</td>
<td>1, 2 July 1981 (Individually)</td>
<td>No</td>
</tr>
<tr>
<td>8 July 1981</td>
<td>GIT 2: Assessment - Norm Reference vs. Criterion Referenced Module D Unit 1 &amp; 2</td>
<td>2 x 5 students (in each group)</td>
<td>8, 9 July 1981 (Group)</td>
<td>Yes</td>
</tr>
<tr>
<td>15 July 1981</td>
<td>GIT 3: Constructing Objective Test Questions Module F Units 1 &amp; 2</td>
<td>1 x 4 students</td>
<td>15, 16 July 1981 (Group)</td>
<td>Yes</td>
</tr>
<tr>
<td>22 July 1981</td>
<td>GIT 4: Marking Essay Questions Module G Units 1 - 3</td>
<td>2 x 5 students (in each group)</td>
<td>22, 23 July 1981 (Group)</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Fig. 9.2** Time Schedule Of GIT And Interviews
It is to be noted that everyone of the twenty-five students had had a chance of being interviewed because the two recordings which were made at each GIT session were composed of different students. At every interview the recorded GIT session was played back for the groups of students to listen to, and by a process of stimulated recall students were questioned on what transpired during the GIT session, and, subsequently, on their perception of ILGIT. Of the seven recordings, five were transcribed verbatim for both the GIT sessions and the interviews following these. A questionnaire was then developed on the basis of some issues which emerged from the interviews. This was administered to all twenty-five students and the data was analysed using the SPSS. The results of the interviews and the SPSS are discussed in section 9.4.

9.4 INDIVIDUALISED LEARNING WITH INDIVIDUAL TUTORIAL (ILIT)

Because of individual differences no two teaching methods can please everybody. Similarly, the students' reactions to ILIT were mixed. The personal tutorial that was offered as a follow up to IL was appreciated by a fewer number of students. I found that it was appreciated by students who were shy but not withdrawn as these two quotes suggest.

44:13 "Individual err this type of learning I can do it myself...If I've any question I prefer to talk it personally to a lecturer. I don't prefer to put up my hand and talk it in front. I'm not the type of person who likes to talk in public..."

60:20 By this (individual tutorial) we feel more free to ask questions because not shy.

Student 13 also enjoyed group discussions where she was quite participative. Student 20, perhaps on account of a language problem, did not at first enjoy GIT sessions nor saw the need for them. She said:

70:20 If we read the modules carefully and explain them to ourselves, we can understand.
This was a perception made after the first GIT. However, her perception changed somewhat by the time she had gone through four such group activities. There was no evidence at the end of the course, that she was averse to GIT. (Table 9.1(a) and (b), Appendix P3, student 20).

On the other hand, there were some students who felt that IT was rather restrictive in the sense that the understanding of a problem was only shared between the lecturer and the student being tutored, as indicated by the following student:

22:21 "When the explanation is given only you know about the explanation so...if you've not really understood about the explanation, then you would like to refer, you have to go back to the lecturer..."

This student inferred that if in doubt he could not use his peers as resource persons because there was no sharing of understanding (believed to be possible when the lecturer explains to the whole class) among students. The student further stated:

"When you have personal contact with lecturer (meaning individual tutorial) only you and the lecturer know what you're talking about so when you try to explain to them (meaning friends) they have a different view..."

The perception of the students in the case study towards IT as an additional component to IL can, consequently, only be described as lukewarm. The reaction of Malaysian students to IT appeared to vary from the reaction of their Western counterparts where it was noted that the one-to-one relation in Keller Plan using proctors facilitated the greatest contact than is usually possible, and the students found this very helpful (Willoughby and Boud, 1973; Kulik, Kulik and Smith, 1976; Nelson and Scot, 1972 & Myers, 1970, in Kulik, Kulik and Carmichael, 1974). Scot and Myers found that self-pacing and personalised interactions seem to be the two most attractive features in the Keller Plan. It may be that in the Keller Plan, since contact is mainly directed towards correcting test questions, the interaction is perceived to be of more relevance and importance.

IT in the study may not have been perceived to be as useful if students have not worked through their ILM and identified their problems, because the evidence suggests that students tended to procrastinate and, therefore, not utilise the tutorial time fully and advantageously. Two other factors may account for this. Firstly, the tutors reported
in American studies were undergraduates who were normally senior
students. The majority of British self-paced courses however, use
postgraduate students and faculty as proctors. This was seen to
have the disadvantage of removing the peer element in tutoring,
Boud (1974). It would appear that even in the British context, peer
element in IL is a feature to aim for. In my study the tutorials
were not carried out by fellow students but by the lecturer herself.
Whether the tutorials were lecturer-managed or managed by fellow
students, appear to affect the perception of the students towards
ILIT. There was evidence from the group interviews to suggest this.
A second factor may be attributed to the students' perception of the
lecturer in the context of the student-lecturer relationship in a
tutorial situation. A few quotes may illuminate these two points.
I have underlined the parts which indicate the students' perceptions
of the lecturer.

{ILGIT 3/GP2}
I: "Of the two approaches which do you prefer IL' + IT
or IL + GIT?
S3: IL + GIT stimulates interest and helps in our under-
standing. We really concentrate and clears our
doubts.
S4: Give us a chance to give our views even if our views
are not correct.
I: Why can't you give your lecturer your views?
S1: Partly because you are not one of our peer groups.
Because if we treat someone of our own level we are
more free to open up."
{ILGIT 2/GP2}
S1: When we have a group we may feel it's easier to
contribute and share our opinion, we do not feel shy
(other students in the group echoed agreement).
Free compared to individually with the lecturer.
S4: More free to express opinions.

{ILGIT 3/GP1}
I: "What do you feel about studying through IL and
tutorial or IL + GIT?
S3: I think I prefer given the choice, I prefer group
activities.
I: Would you like to elaborate please?
S3: The group discussion err one is more informal
among us. Individual tutorial quite formal.
I: You said 'formal'. Was that formality because I
was new to you? Had it been err your own lecturer
your're used to?
S3, S4: Anything...the same you have been here quite a while.

I: Well supposing one of your other tutors whom you know very well, how would you feel about the individual tutorial?

S3: I mean from the start we looked up at lecturers how you expect us to talk?

S5: (intercepting) So freely

I: What does that mean?

S3, S1, S5: Same level (laughter)

I: It sounds recorded (laughter) I'm sure S3 is not speaking for others.

S4: Not much difference just the same view...because when you come err to individual tutorial formality is there...because you are not used to personal talk and when it comes to peer discussion we know that everybody has almost the same standard, maybe a little bit better. When you have individual tutorial one who knows everything and one who knows a bit...so the interaction there is quite difficult."

To a certain extent the quotations reflect some of the characteristics of Malaysian students. The comments serve to illustrate that the students tended to hold their lecturer in awe - as someone they 'looked up to' and 'not used to personal talk'. It is not clear whether they were not used to talking person to person with a lecturer, or whether they were not used to discussing with the lecturers because they viewed their lecturer as someone who know so much more than they did. Hence they felt that their role was not to question why or what but to accept, in entirety what was presented to them, as in the lecture. I have a feeling it may be both. As Student 4 above suggests, interaction with the lecturer would be difficult if he perceived the lecturer to have more knowledge than he had. Under such circumstances he did not see the possibility of expressing his views freely, and if he did he might feel they were insignificant compared to the knowledge that his lecturer had. It is very likely that Malaysian students differ from their Western counterparts in this respect.
9.5 INDIVIDUALISED LEARNING WITH GIT (ILGIT)

Generally, the reaction of the students was positive towards ILGIT. Their level of agreement in terms of understanding the subject better and in terms of stimulating them to think was high (Table 9.2(a) I) - over 90%. In the affective area (Table 9.2(a) II) ILGIT was seen to provide enjoyment to 72%; 20% was indifferent and 8% recorded negative response in terms of enjoyment. In fact, it may be noted that one out of the twenty-five students (4%) considered GIT to be a waste of time and also 4% suggested that GIT did not encourage him/her to speak up more, while 88% felt that they were encouraged to speak up more in GIT. Almost all the students (96%) perceived the advantage of GIT as enabling them to express their views even when their views were not correct.

In terms of study methods, (Table 9.2(a) III) again one student perceived GIT as not useful because he/she preferred to work alone. The majority of students (84%) however found it easier to discuss among friends. 32% did not agree that they depended less on their lecturer - an observation which appears to some extent to suggest the continued reliance of LOL students on the lecturer. The finding is supported by the fact that these same students were those who were described as LOL students in Chapter 8, Part III.

One of the main purposes of administering the ILGIT questionnaire was to investigate if GIT could generate more interest in IL among students in the study and, conversely, given the appropriate tasks, whether there was an extension of the IL materials to GIT. The responses in terms of specific effects of GIT on IL and vice versa could be summarised as follows:

(Table 9.2(a) IV) | Stimulate interest | 92%  
| Follow up to IL | 92%  
| Clear misunderstanding in ILM | 88%  
| Apply knowledge from ILM | 88%  
| Reinforce what was learned in ILM | 100%  
| Recall what was learned in ILM | 100%  
| Statements in GIT based on ILM | 96%  
| It helps participation in GIT | 92%  
| GIT encourages reading ILM | 92%  

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Table 9.2(a) Evaluation Of ILGIT

Responses correspond (left to right): 1. Completely agree  
2. Somewhat agree  
3. Neither agree nor disagree  
4. Somewhat disagree  
5. Completely disagree

<table>
<thead>
<tr>
<th>I</th>
<th>Q Cognitive aspects of ILGIT</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>NR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>stimulate me to think more than I usually do</td>
<td>40</td>
<td>56</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>help me to understand the subject matter better</td>
<td>0</td>
<td>0</td>
<td>44</td>
<td>52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>do <strong>not</strong> make me think and concentrate</td>
<td>0</td>
<td>0</td>
<td>44</td>
<td>52</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>II</th>
<th>Q Affective aspects of ILGIT</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>NR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>make me bored</td>
<td>0</td>
<td>0</td>
<td>28</td>
<td>52</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>give me a lot of enjoyment</td>
<td>4</td>
<td>68</td>
<td>20</td>
<td>8</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>are a waste of time</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>32</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>I am encouraged to speak up more</td>
<td>28</td>
<td>60</td>
<td>8</td>
<td>0</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>I read the modules because I do not want to appear silent in the discussion</td>
<td>24</td>
<td>44</td>
<td>12</td>
<td>8</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>give me a chance to express my views</td>
<td>44</td>
<td>52</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>III</th>
<th>Q Study methods</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>NR</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>are not useful to me because I prefer to work alone</td>
<td>0</td>
<td>4</td>
<td>16</td>
<td>46</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>in a group discussion some people tend to dominate because we do not read the modules properly</td>
<td>16</td>
<td>68</td>
<td>8</td>
<td>8</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>I find it easier to discuss among friends rather than learn by myself</td>
<td>24</td>
<td>60</td>
<td>16</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>I depend less on my lecturer</td>
<td>0</td>
<td>52</td>
<td>16</td>
<td>32</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>I get easily distracted and stray from the discussion</td>
<td>0</td>
<td>4</td>
<td>8</td>
<td>52</td>
<td>36</td>
<td></td>
</tr>
</tbody>
</table>

cont'd
### IV Q Relatedness of GIT to ILM

<table>
<thead>
<tr>
<th></th>
<th>Percentage Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>stimulate my interest in reading the modules</td>
</tr>
<tr>
<td>18</td>
<td>are not useful as follow up to IL</td>
</tr>
<tr>
<td>20</td>
<td>clear misunderstandings I have when reading through the IL modules</td>
</tr>
<tr>
<td>21</td>
<td>help me to apply the knowledge I gain from the modules</td>
</tr>
<tr>
<td>22</td>
<td>do not reinforce what I have learned from the modules</td>
</tr>
<tr>
<td>23</td>
<td>help me to recall what I have learned from the modules</td>
</tr>
<tr>
<td>25</td>
<td>the ILM were not helpful to prepare me for the discussion</td>
</tr>
<tr>
<td>26</td>
<td>statements I made in group interactions were not based on what I had learned from the modules</td>
</tr>
<tr>
<td>28</td>
<td>I was able to participate in GIT because of what I have read in the modules</td>
</tr>
<tr>
<td>29</td>
<td>the GIT tasks do not encourage me to read through the modules</td>
</tr>
</tbody>
</table>

### V Q Peer role in GIT

<table>
<thead>
<tr>
<th></th>
<th>Percentage Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>when I discuss the modules with someone of my own level I am more free to open up</td>
</tr>
<tr>
<td>6</td>
<td>are not interesting to me because I cannot work with the people in the group</td>
</tr>
</tbody>
</table>

### VI Q Lecturer role in GIT

<table>
<thead>
<tr>
<th></th>
<th>Percentage Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>the presence of the lecturer at the discussion hindered my participation</td>
</tr>
</tbody>
</table>

### VII Q Other

<table>
<thead>
<tr>
<th></th>
<th>Percentage Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>GIT is only useful for topics which are relevant eg constructing objective test questions</td>
</tr>
<tr>
<td>30</td>
<td>a leader is important in a group activity to ensure that students prepare their work</td>
</tr>
</tbody>
</table>
Again 4-8% of the students gave negative responses.

In the final analysis I asked the students about their level of participation, understanding and satisfaction. Although only 40% (Table 9.2(b) I) indicated that they took part a lot, 64% (Table 9.2(b) III) indicated a high level of satisfaction. It was evident from the interviews that the level of satisfaction was not entirely related to whether the students participated a lot or not. The following quotes suggest that for some of the students, even the act of listening to their peer and learning from the discussion gave them a sense of satisfaction.

"Through listening I gathered a lot of knowledge."
"Maybe some of the things you miss...someone brought up so the things you don't know you know."

The evidence of this may also be reflected in the way they perceived their understanding from GIT in which no one indicated that they did any worse. Instead 84% indicated that their understanding increased a lot. (Table 9.2(b) II)

In order to put the students' reaction towards the teaching methods and their various components in perspective, I requested them to make a choice of teaching methods twice: once after Module C when the intervention was IL + IT and then again after Module G when the intervention was IL + GIT. The findings presented in Table 9.3 shows some interesting results. When the students were interviewed after Module C and requested to make a choice between IL and the lecture, the results were 76% for IL and 16% for the lecture. When GIT was introduced the choice was for a combination of methods. What is worth noting is that more students chose a combination of lecture + IL + GIT (52%), rather than lecture + IL + IT + GIT (32%).

Having discussed the quantitative data, I would now like to only highlight some of the more pertinent issues.

9.6 SPOTLIGHT ON TWO ISSUES IN ILGIT

9.6.1 "Encouraged to Speak Up More and Express Freely"

The students perceived that what could not be comfortably carried out in ILIT eg 'express their views freely', or be 'encouraged to speak up more', could be carried out in ILGIT. As one student said:
### Table 9.2(b) Evaluation Of ILGIT By Group 05 Students at STTI

<table>
<thead>
<tr>
<th>Participation</th>
<th>Percent Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not take part (1)</td>
<td>0</td>
</tr>
<tr>
<td>Took a little part (2)</td>
<td>60</td>
</tr>
<tr>
<td>Took part a lot (3)</td>
<td>40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Understanding</th>
<th>Percent Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Got worse (1)</td>
<td>0</td>
</tr>
<tr>
<td>Remained the same (2)</td>
<td>12</td>
</tr>
<tr>
<td>Increased a lot (3)</td>
<td>84</td>
</tr>
<tr>
<td>No response</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Satisfaction</th>
<th>Percent Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>No satisfaction (1)</td>
<td>0</td>
</tr>
<tr>
<td>Little satisfaction (2)</td>
<td>36</td>
</tr>
<tr>
<td>A lot of satisfaction(3)</td>
<td>64</td>
</tr>
</tbody>
</table>

#### Table 9.2(b) Evaluation Of ILGIT By Group 05 Students at STTI

<table>
<thead>
<tr>
<th>Choice after Module C (when IL + IT were the interventions)</th>
<th>IL</th>
<th>LE</th>
<th>Both</th>
<th>NR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>72%</td>
<td>16%</td>
<td>4%</td>
<td>8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Choice after Module G (when GIT was intervention)</th>
<th>LE</th>
<th>IL+GIT</th>
<th>Combination</th>
<th>NR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4%</td>
<td>12%</td>
<td>80%</td>
<td>4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nature of combination</th>
<th>LE alone</th>
<th>LE+IL</th>
<th>IL+IT</th>
<th>IL+GIT</th>
<th>LE+IL+IT+GIT</th>
<th>LE+IL</th>
<th>NR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>32%</td>
<td>52%</td>
<td>16%</td>
</tr>
</tbody>
</table>

Table 9.3 Choice Of Teaching Method After Module C and after Module G By Group 05 Students At STTI
"As far as I can see err I speak for myself, I mean such activities stimulate me to speak up whereas..."

This is an interesting phenomenon because Malaysian students have been known to be very passive in their learning and the fact that a relatively high percentage of students (88%) (Table 9.2(a) II, Q 13) shared the same feelings, may have important implications for teaching in the Malaysian context.

The opportunity to interact verbally has been found to be lacking in the lecture and in this study in IL as students indicated. This appears to be an issue which does not seem to surface in the Western literature. One of the limitations of the lecture, in the context of a Malaysian classroom discussed in Chapter 3, was the lack of interaction between students and lecturers and between students and students. There is further evidence of this in Chapter 8. In the lecture situation students were found to be prone to adopt a LOL approach with little participation. In IL, on the other hand, even though the students were more likely to be self-oriented in their learning, it lacked the informality of interactive learning.

Learning by oneself was perceived to limit the understanding:

88:16 It doesn't mean that whatever we read we understand...so we have got to discuss. Sometimes we feel we can understand when we read by ourselves, but there are times when in matters which we don't understand ourselves perhaps we need to discuss with friends.

(T)

Hence the students felt that in both the lecture and IL student participation in an interactive learning was still lacking. Whatever interaction there was in the lecture situation was felt to be 'formal' and not enjoyable as demonstrated in the quote below. Here I asked the students in a group interview what the difference was between discussion in the lecture and discussion in a GIT situation and how this affected their enjoyment.

S2: "Can be said to be formal.

S1: In a lecture we feel it formal when we contribute an opinion we do it formally there is no discussion."

On the other hand more satisfaction was perceived in GIT:

42:22 GIT is more effective - can give more satisfaction...in GIT a lot of ideas can be put forward because when we read by ourselves we capture our own meaning.
If in big group perhaps more views can help towards one conclusion of what is really the case or what is really the message in the modules.

Brewer (1979) drew similar conclusions about the effect of group teaching upon the attitudes of individual students:

"Students get an insight into the way other people think about the problems under discussion and thus may add a new dimension to their own critical thinking."

Her findings were based on quantitative data and subjective estimates of tutors supported by the opinion of students gathered from questionnaires.

The lack of opportunities for students to verbalise and express their views freely among people with their own abilities appears to be at the root of the learning problems of Malaysian students. These include lack of confidence, feeling of inferiority, and hence reluctance to enter into an interactive learning situation in the normal traditional method of teaching. Further insight into what Malaysian students think about a satisfying learning situation can be demonstrated by the comments of the following student:

I: What are the factors do you think that can give satisfaction in this (I mean GIT) kind of approach?

S1: One is when we give our answers we can't just give it like that we have to provide reasons, reason out (her own English words) why we give reasons like that.

S5: (picks up) Perhaps also there are other answers which are different from our answers. So we can confront...not only do we rely on our own answers only. If we want to reject the other person's answer we have to give our own reasons why we do not want to accept the answer given by that person.

9.6.2 "Depend Less on the Lecturer"

It was clear in Chapter 8 Part III that the lecture method tended to encourage students' dependence on the lecturer. In ILGIT, on the other hand, there is some evidence that the students depended less on the lecturer, but it is more important to note that
32% did not share this view (Table 9.2(a) III). Again this has implications for teaching in the Malaysian situation. A couple of quotations will illuminate how students perceived the role of the lecturer in ILGIT. When Student S4 on p. 9:12 remarked that he found interaction with his lecturer difficult, I asked him what kind of interaction with the lecturer would he have hoped for otherwise.

S2: "A group, a group interaction with the lecturer like this.

S3: Yes, like this. This kind of interaction (referring to the kind of interaction that we had in the group interview).

S2: Discussing over assignments.

S1: Sometimes the lecturer gives assignment we don't know exactly what we are required to do.

I: Are you saying you don't want individual tutorials at all?

S1: We would prefer not to say don't want. Given a choice I would choose GIT with the lecturer, a smaller group like this among ourselves with peers."

There is a suggestion in the conversation that transpired that the lecturer would be more acceptable, in fact preferred, in a small group interaction with peers possibly in a more informal role.

Another student in another GIT group while recognising the usefulness of the lecturer's position as arbiter in times of disagreement between students, perceived that in ILGIT if disagreement arose:

S: If there is no lecturer we follow the module...even if there is no module well let's see who is influential in the group. If we can accept his views we'll accept them.

I: Influential in what terms do you mean?

S: Strengthen his/her basis for his/her arguments or answers because if we do not have lecture perhaps we rely on the module isn't it?

One may infer from the two preceding quotes that although students may continue to rely on the lecturer to settle disagreement in their discussions, the lecturer now is no longer indispensable. In some instances and for some students, the lecturer can remain in the background provided the students can fall on good resource materials and/or effective and competent fellow students within the group who can, in a sense, engineer and propel the discussion towards an effective closure (an illustration perhaps of learning for dependence, independence and interdependence (Elton, et al., 1978)).
9.7 THE RELATIONSHIP BETWEEN IL AND GIT

9.7.1 An Episode

In section 9.1 pp. 9:1 - 9:3 I have indicated that one of the aims of the study is to study to what extent IL can be adapted for teaching in the Malaysian context and in the last few sections the evidence has shown that IL, used in conjunction with GIT, can produce effective student learning as perceived by the students themselves. This part of the chapter demonstrates how the students in an interactive situation tended to open up and enter into active discussion. More importantly, it serves to illustrate the relationship between IL and GIT.

In ILGIT students were discovering things that they knew but did not know that they knew. They were also discovering new things that they did not know before. In some instances they were also discovering themselves. Part of an extract of a GIT session, and the subsequent interview that followed it using stimulated recall, is reproduced here. The purpose is to highlight several of the following elements that appear to emerge from the conversation. However, it is not my purpose to investigate group friendship patterns. The elements that emerge are:

- the process of discussing and analysing that students engage in to arrive at an agreed opinion or view;
- that this process draws upon the students' previous knowledge, understanding and application;
- that this process shows up the participant's own ability and degree of preparedness and how this affects his/her participation and attitude towards the process of GIT and the subsequent action that he/she may take.

The following is an extract of a GIT in which four students discussed Assignment 4 in Module F ie a question on matching items which test a higher level ability (Appendix P4.66 which another student in the class had done and had volunteered it to be used as a basis for GIT. At the end of the GIT session, within 24 hours, a meeting was arranged with the four students to hold a group interview. The tape was played back to them and stopped at frequent intervals (indicated by the signal +STOP SR ie STOP : stimulated recall). At this point
I intercepted with some questions and asked for clarification if necessary. The conversation that transpired between the students and me when this happened is laid out at the end of the transcript on the GIT session.

S3: "Shall we see matching items?
S1: You read out the question first.
S5: (writing) **Premise** - limestone landscape or karst regions consist of few settlements.

<table>
<thead>
<tr>
<th>Response</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>poor soil</td>
</tr>
<tr>
<td>B</td>
<td>dryness of surface</td>
</tr>
<tr>
<td>C</td>
<td>barren nature</td>
</tr>
<tr>
<td>D</td>
<td>confined to basins</td>
</tr>
</tbody>
</table>

(voices) (unintelligible)

S3: I don't think so, matching tests are done like this.
S1: They are done like this

STOP : SR1

S3: Limestone landscape there's one answer for this and then this one, one answer for this.
S1: No, there are many types - one is that one answer to one question isn't it. Then you got a lot of responses but fewer premises.

(silence) (5 seconds)

This question is quite vague you know. Limestone landscape or karst regions consist of few settlements. The question is not very clear is it? Why is it? Is it because...It's just like a statement by itself you know.

(voices) (unintelligible)

STOP : SR2

S2: There can be more than one answer.
S4: I think when they read these responses they know the answers already. They more or less understood the question.

S2: The question should be quite clear isn't it?

(voices) (unintelligible)
S1: But then 'poor soil' the answer is correct also.
S4: Maybe all the answers are correct, but find the most plausible one.
S1: But then if this is a poor soil that is why the region is barren you know,

(she now reads the extract again)

STOP : SR3

dryness of surface implies barrenness.
S2: Ya one more answer.
S4: Confine to...?
S2: Confine to basins.
S1: Not very good answers.

S1,S4: (agreeing)
S2: The answers are incorrect you know.
S1: Then write lah.
S4: Is this a higher level question? Higher level ability question.
S1: Higher level (reflecting)
S4: Higher level includes understanding, application.

S1,S2,S4: And then you must analyse.
S1: Then this is a low level cognitive isn't it?
S2: Understanding and...
S1: Understanding I think depends on the understanding.
S4: You mean how to apply it?
S2: Application?
S1: Not really its direct you know.
S2: I think it tests understanding only.
S1: Application comes when applying formulas and all that.
S4: Here you don't have anything to apply.

S1,S2,S4: So understanding only.
S1: So okay already lah.
S2: You think it tests understanding only?
S1: Knowledge and understanding.
S4: mm (agreeing)

→ STOP : SR 4

(Note: S3 after being corrected was not participating until much later)

Post GIT interview

→ (STOP : SRI)

I: "What were you saying S3?
S3: Actually, I was not very clear about this matching items. I thought there should be equal number of questions and responses more or less constant and that in this case there is only one question and few responses.

S1: What he was saying was that one question should go with one answer then we were saying that for matching items we usually have more responses than the premises.
S3: No, I wanted to know why she got only one question and few responses.

I: What was happening then?

SI: We were saying that the question isn't clear enough because it's more or less a statement. We thought that she should either add 'because of'

S4: Due to

SI: Or which one.

I: Were you making a reference to the module during this time?

SI: To the extract.

I: Were you reading through the extract?

SI: Yes.

I: You (S3) were rather silent, what were you doing? Can you remember?

S3: I was concentrating on what SI was saying.

I: Can you remember what went on in your mind?

S3: Can't remember.

I: What happened then?

S4: I was referring to the question. Second question said matching item refer to a higher level. Then I was asking whether that question suits.

SI: Meet with the condition or not.

I: And so what did you find out?

SI: I thought it was more than just knowledge level."

At this point I told the students to refer to their Module F and drew their attention to the characteristics of matching items. The three girls realised that they had all along talked of the characteristics of MCQs and not of matching items and that S3 had been correct in pointing it out to them. (The GIT prior to this was on multiple choice questions).

S3: "Because three of them felt so sure I thought I was wrong. So I keep quiet."

I went on interviewing the students about their general perception to the GIT. I have underlined parts of the transcripts which are most pertinent to the ensuing discussion.

I: "Who feels that they were not prepared at all. If I say 1-5 5 very well and 1 not well at all. What scale would you rate your preparation?

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I: How far do you think that makes you think about the past modules? You were going back to Modules A, B and C. Were you aware that you were actually talking about what you have already learned in Module A?

S4: We were not aware.

I: But now that I have mentioned it what do you think about it about your understanding of the past modules?

S1: I think by discussing all this we become more familiar.

S4: We really apply it.

I: You think you have applied? S4 would you like to elaborate when you say you learn to apply?

S4: Through discussion we learn, know more, discuss about the mistakes, more understanding, it clears our doubts.

I: How does it help you to S3?

S3: Better to have discussion among friends rather than sitting down and doing it ourselves.

I: Has this GIT helped you in your understanding of the modules?

S1: Through discussion serves as reinforcement of what we learned recall from modules. One thing I feel that in a discussion certain people will dominate the discussion whereas some will tend to keep quiet.

S4: I think it is because we haven't read properly you know. I think it's better we all of us read very well before we come.

I: You did know we were going to have the group discussion. Did not that induce you to read?

S4: Ya, that's one of the reasons why we read.

S2: Because of our English test that's why.

I: But you had a week to read the modules, so how have the modules been important for you to prepare you for the discussion. Have you found these useful? If you have read them of course.

S1: I think by reading through the modules you more or less equipped. You know what you are talking about and whatever statements we make we can back up through whatever we have learned through the module except to-day lah, I don't know what happened.

I: If this kind of method of teaching is used ever so frequently, would you think you are going to be bored?

S3: I think in a way, can't always do discussion.
I: You have three so far right, what is the stage of your interest?

S4: I think at this stage we are not progressing towards boredom. The interest is still up when it comes to discussion. For me it is increasing.

S1: I think it depends on other factors let's say if we have a lot of assignments so we wouldn't be able to spend much time on the module eg if we are going to have the discussion on the next day so you know for the sake of the discussion we just skim through it but otherwise I think especially when it comes to Module F. It is very relevant to what we'll be doing next time because we have to prepare questions and all that so we'll be better equipped.

I: On a scale of 1-5, how would you rate your participation?

S1: 4
S3: 3
S4: 2
S2: 3

I: What about satisfaction. How satisfied are you with what went on?

S4: 4
S2: 3

S1: Average

I: How would you like the discussion to go on so that it would increase your satisfaction?

S1: I felt that had I really gone into the module I would discuss it better - maybe be more critical of the questions and answers. I felt I could have done better.

S3: 3

S4: 2 because I feel I have not prepared properly before I came.

S2: 3

S3: 3. I don't care for Geography that much.

I: What about the others. Do you feel the subject Geography affected your enjoyment?

S4: It's okay.

I: Did you see your role differently in the discussion just now?

S1: I think for me during the discussion itself I didn't realise I was talking so much but now I'm hearing it I feel I more or less dominated the discussion. Should have given others a chance to talk more.

I: How relevant is that as a learning experience for you?
SI: I think by really participating I learn a lot myself but on the other hand I might deprive others of the opportunity of viewing their points.
I: What role did you play? (looking at S3)
S3: Listening because I’m not familiar with these terms.
I: What do you think of the view that the leader is important in any group activity?
SI: It is good to have a leader so that someone can be responsible and so that things can be carried out in a more organised manner, but on the other hand, the other members tend to rely on the leader and leave all the responsibility to him.
S3: I feel there is no necessity for us to choose a leader if everyone can be prepared. Each one can do their own...
I: What role do you think you played S4?
S4: Too busy listening.
S2: More listening I gathered a lot of knowledge.
I: How did you feel when I was there?
S4: Your presence there hindered our full participation.
SI: We felt quite awkward you know.
I: Was that only at beginning or throughout my stay at the table?
Voices: - All throughout.
I: After I left did you feel there was a change?
Voices: (all) - We are more free to open up (laughter)
I: Of the two approaches which do you prefer IL + IT or IL + GIT?
S2: IL + GIT stimulates interest and helps in our understanding, we really concentrate and clear our doubts.
S3: Gives us a chance to give our views even if our views are not correct.
I: Why can’t you give your lecturer your views?
S3: No time.
SI: Partly because you are not our peer groups someone of our own level are more free to open up.
S2: By discussing not so boring.
S4: Especially during afternoon hours.
I: Would you like to elaborate S2?
S2: Last discussion (inferring GIT) we had we all had to do the same thing so we had this err competition among us, so we argued which is CR, which is NR. Everybody participated in that."
9.7.2 Discussion of the Episode

Although it is obvious that the discussion revolved around a misconception of the characteristics of matching items (the students were before this evaluating a MCQ question), the very act of getting into a group and discussing a problem appears to be a useful learning experience which is also an occasion where one discovers one's mistakes.

Generally, it may be observed that there were attempts at developing higher thought processes. The students entered into a dialogue and were demonstrating some understanding of what they had read from the modules by making references to specific concepts such as 'premises', 'responses', 'higher level or low level cognitive ability' and what these imply and were applying the knowledge to the solution of a task.

The discussion, however, lacked clarity and it was apparent that the students were unsure about certain facts related to the content of Module F. Even Student 3, who had his facts correct, felt unsure because he was outnumbered in terms of what was the acceptable view in that discussion. Here is a typical instance of a student lacking in confidence about his own understanding of what he has read from the module - sentiments discussed on p. 9.24 and p. 9.29.

The students became aware of this lack of clarity themselves and put it down to their own state of unpreparedness. One student indicated that she would have been more satisfied had she really gone into the module. She felt she could do better. Another student shared the same feelings. Another provided an explanation for their unpreparedness on account of an English test. Students in other groups also gave this as an excuse for their unpreparedness.

Similarly, a general feeling of dissatisfaction pervaded the students of another group which can be described to be less prepared. I asked what their level of satisfaction was:

S3: "For the second one (meaning second GIT activity),
I: The third?
S3: 3
I: Why has it gone down to 3?
S3: We were not prepared."
Student 1 of this group indicated that they enjoyed session GIT 2 tremendously because they not only compared their performance among themselves but also with other groups. Similar feelings were earlier expressed by group 2 below:

S1: "Unprepared, don't have material to discuss, fear inferiority.

S5: Lost, now am I going to discuss this because I'm not prepared?

I: So what are your feelings now?

S1: I think - the first place we should have more group interaction.

I: What do you mean in the first place?

S4: Right from the beginning.

I: Well do you think you might get bored with so many GIT?

S4: No, I think we'll work much better.

S5: We learn next time we have to be prepared.

S2: I agree, I think we have to read beforehand...in order to really understand and have better discussion like that day."

Lastly, the evidence that GIT can have an effect on student learning through IL is quite substantial. There was reference to this at several points in the episode. Further illumination can be found in the following quotes. This student was describing his participation in IL GIT 2 on Norm Reference and Criterion Reference Testing (Appendix P1, p. 504)

I: "To what extent have the modules helped you in your participation in group discussion?

S: We had more things to talk about; I don't think there was any pause anywhere we were talking quite rapidly."

9.7.3 Fluctuating Student Reactions

When IL was conducted on its own with IT the students' interest appeared to wane. Fig. 9.3 represents the rate of completion of the modules. Completion in part very often meant that the reading had been done but not all the activities and assignments had been completed. The students' interest seemed to be fairly sustained with Module A1 and A2 but began to wane by Module C2. At Module D1 and D2 there appeared to be renewed interest when GIT was introduced as an intervention. By this time they had had one trial participating in GIT after Module C2. Module D1 and D2 followed by GIT 2 (Appendix P1)
Note: Module E was optional

* completion in full
** completion in part

Fig. 9.3 A Graph To Show the Rate of Completion of ILM by Students
(Group 05 = 25 students)

(For the individual responses to rate of completion of the ILM please see Table 9.4, Appendix F5)
gave much satisfaction to the students. By Module F which was followed by GIT 3, the students' interest had waned again. Two reasons may be given for this:
(a) The students had an English test at this same time (p.9:25)
(b) Module F was found to be the longest by 52% of the students and the hardest also by 52% of the students (Table 4.1(c) p. 4.36.

Then there was an apparent renewal of interest with GIT 4, a group activity based on Module G on marking essay questions. Although not all students had completed Module G, about 70% of them by show of hands indicated that they had read Modules G1, G2 and G3 in preparation for GIT 4. This was much higher than the proportion of students who prepared for GIT 3 and their participation was livelier and more effective.

9.8 SUMMARY AND DISCUSSION

The investigation of ILGIT was too brief and there were too few GITs to enable me to draw definite conclusions, but there was sufficient evidence to suggest that IL, together with its two teaching components IT and GIT, can cater for the individual differences that characterise students in the Malaysian context. ILIT and ILGIT can be a complementary process which can result in a more meaningful contact with the lecturer.

The main issues which have been discussed are summarised below:

1. Malaysian students' inhibitions: calls for re-examining the Teaching and Learning context

Not all students prefer to learn independently by ILIT. Malaysian students generally have a disposition towards holding someone in authority (eg the lecturer) with positive regard. They perceive the lecturer as 'being up there' to disseminate knowledge and that their function as students is 'down there' to accept what is handed out to them unquestioningly. When placed in a situation where they can directly interact with the lecturer on a one-to-one basis, they became uncomfortable and would 'not open up freely' even when
they were reluctant to accept the lecturer's points of view. For example the following comment from one of the students demonstrates such an attitude:

I: "You have this one-to-one tutorial help in class. After giving you one module I follow up the next week with two sessions of tutorial when I can give you individual help. How helpful has that been to you personally?

10:18 Maybe sometimes there are certain things that we don't agree with you but then because where this is concerned you have more high intellectual level than us...so you know you're more well versed in this, so I mean there are certain things that we really disagree with but we don't know how to put into words...we fear that we interpret it wrongly..."

The students have been too long exposed, as they themselves indicated, to the traditional mode of teaching for them to change their attitude suddenly. The following student expressed this feeling:

08:15 "The moment when we come in we were only exposed to lectures. So we are used so used to it already... all of a sudden you came in and said I'm going to do module teaching so everybody is so confused.

I: You're thinking for everybody?

08:15 No, I mean for myself.

I: Are you still confused?

08:15 I think I'm really getting used to it."

Nonetheless, the implication is for re-examining the teaching and learning context which can provide a learning environment that can foster students' intellectual and personal development. Malaysian students' learning problems I think are closely related to their lack of confidence and inhibitions that suppress self-expression. Clearly, the evidence suggests that placed in a stimulating teaching and learning situation, they tended to demonstrate an awareness of a more active and critical approach to their own learning.

2. Tutor-less group interaction to tutor-led tutorials using stimulated recall

Although at this stage some students were not fully appreciative of ILIT, they were open to the idea of a tutorial situation in which the tutor was a participating member in his capacity as tutor in an interactive group of five or six students. This is more akin to
Brewer's (1977) quiz groups of eight to ten students who meet for 1-1½ hours each week with their tutor for a quiz and discussion session based on the objectives of ILM studied in the previous work. So in a sense Brewer's group is a tutor-led group although the tutor intercepts as minimally as possible. I am advocating a tutor-less group working on set tasks which is tape recorded of the kind that was done in the study, followed by a tutorial in which the tape is then played back for stimulated recall. This became the basis for the tutorial. Listening back to their own arguments can give students a very useful feedback besides being more aware and critical of what they think and say, and of what other members in the group say and think. As Black (in Elton, 1979) points out, the combination of a tutor-less discussion followed by a tutor-led session can be an effective method for training mental skills. I would add that using stimulated recall in a tutor-led tutorial would be effective to develop critical self-awareness in students of their own development in mental skills.

3. **GIT can stimulate independent learning through ILM**

There is evidence that the students were motivated by GIT to read through the ILM. Where the students experienced doubts in learning through ILM, GIT provided more opportunity for them to clarify their thoughts and understanding and develop critical thinking. In ILGIT the students appeared to be more conscious of their responsibility in their own learning. The contention that Malaysian students are passive is fallacious. There is only passivity-induced teaching in an environment which lacks stimulation. Placed in a teaching mode which requires students to be active in their learning, even LOL students may be induced to adopt a more active approach to their learning.

In ILGIT the students are both oriented towards learning individually through IL and interactively in GIT. Furthermore, the students are also directed towards within-group cooperation and inter-group competition. This kind of teaching and learning situation can infuse interest and active participation among the group members in their learning as was demonstrated in GIT 2. More importantly, the students can be encouraged to become progressively more independent in their own learning.
4. Dependence on the lecturer

When students are more apt to learn independently, this is an indication that they have become less dependent on the lecturer in the normal traditional sense of being fed with information. However, the finding is that 32% of the students disagreed that GIT results in greater independence of the lecturer. This has implications for teaching in a Malaysian context that any attempt at introducing an innovation which requires students to become independent in their learning must, at the initial stage, be closely guided by the lecturer. Although the students recognise the inevitable decentralisation of the lecturer's authority, they will expect the lecturer to provide support in case of disagreement. In ILGIT the lecturer modifies his role drastically from information giver to arbiter, resource person and organiser of effective learning.

5. Communication skills

Perhaps the last but not least important implication that can also be drawn from the study is the need for students to be given training sessions to improve their communication skills. There was some evidence to show that the students were concerned about the manner in which they participated in the GIT.
10.1 INTRODUCTION

In Chapter 8 p. 8:1, I referred to the importance of evaluating an innovation from the perspectives of its direct users: the students and lecturers. Chapters 8 and 9 have looked at the reaction of students to IL and two other teaching components. This chapter investigates IL from the perspectives of the lecturers who used the ILM. For an innovation to be viable the lecturers who were involved in its implementation have also to see its relevance from their point of view in terms of:
- the needs of their students;
- the faculty need or the need of the institution;
- their own potential role in that teaching method.
The innovation has viability only if the lecturers perceive that it can be adapted or tailored into the existing curriculum structure of the institution, ie it can be incorporated into the system within the constraints of the timetable, lecturer’s workload and cost consideration. The last constraint is related to resources for the innovation such as the preparation of IL materials, and the cost of producing them. This last issue could not be studied within the limited scope of this research.

It was alluded to in Chapter 3 that the lecturers were not averse to the idea of IL but that IL had been misconceptualised. This chapter will investigate the conceptualisation that lecturers might have of IL and how this affects the perception of the lecturers to IL as a mode of teaching.
10.2 THE LECTURERS IN THE STUDY

One of the reasons for extending my study to several groups of students in STTI and FEUM was to involve the lecturers concerned. Their participation in the research would provide the feedback on the issues that I have identified earlier. The participating institutions and the lecturers have been described in Chapter 7. Altogether fourteen lecturers participated in the study either fully, in the sense of using at least three modules systematically though differently, or partially using only one module. Nonetheless, I investigated the perception of every one of the fourteen lecturers to give me a more balanced perspective of the lecturers.

10.3 PROCEDURE FOR DATA COLLECTION AND ANALYSIS

I interviewed the lecturers individually at a time and place convenient to each of them after they had used the modules to teach their own groups of students. In STTI, two of the three lecturers preferred to be interviewed together. Each interview lasted between forty-five minutes and one and a half hours, the average being one hour. All except two of the interviews in FEUM were tape recorded. The two lecturers in these interviews did not wish to be recorded. One of them responded to my questions in the written form. Some of the statements she made provided me with cues to probe further. She responded to these verbally and as she did so I noted down the points and, as soon as the interview ended, I rewrote the responses recording as closely as I could her own expressions. The second lecturer verbalised her responses to my questions. I made brief mental and written notes and within twelve hours of the interview wrote out the text as fully as I could. I then submitted this to my interviewee for checking.

For lack of time, I arranged a stenographer to transcribe ten of the interviews verbatim while I transcribed the joint interview myself. I did not look at these transcripts or transcribe the joint interview myself until after I had completed Chapters 8 and 9. This had an unexpected advantage because I felt that my analysis of
Chapters 8 and 9 had not been affected by the comments made by the lecturers. As the interviews were conducted fourteen to sixteen months ago between July - September 1981, I did not remember the content of the interviews. This enabled me to write Chapters 8 and 9 without being prejudiced by what the other lecturers had to say about student learning in an IL situation.

At the start of each interview I stipulated five main areas to provide the lecturers with an idea of the scope of the interview. They were then invited to respond freely in any order they wished. I found that this was very helpful to focus the lecturers' attention to only specific issues in the interview. Consequently, my interruptions during the interview were generally only probing questions. The five areas were:

1. The manner in which each of the lecturers utilised the IL materials and his/her perception of the students' reaction to IL and IL materials.
2. The lecturer's perception of the implications of IL on student learning.
3. The lecturer's perception of the viability of IL within the structure of his/her institution in the Malaysian context.
4. The lecturer's perception of the implication of IL on lecturer role and workload.
5. The lecturer's comments on the IL materials.

The last item was felt to be important because the quality of the IL materials used in the study could have an effect on students' and lecturers' reactions to IL. The analysis and report of area 5 is to be found in Chapter 4 p. 4.39

10.4 UTILISATION OF ILM AND THE REACTION OF STUDENTS AS PERCEIVED BY LECTURERS

10.4.1 IN STTI:

10.4.1.1 Utilisation of ILM

Three lecturers have used the ILM in much the same way ie giving the students one module (2 units) per week to do outside their class time and then discussing the content a week later.
They differed, however, in the following respects and for ease of discussion I shall identify the lecturers as Lecturer G, H and J.

1. Lecturer H indicated that her students completed the seven modules as planned. In the case of the two other lecturers the utilisation of the modules after Module C was more arbitrary in the sense that the students were free to either use them or not because these latter modules were in English and the students had a problem coping with these.

Lecturer H was more structured in the use of the materials and placed a greater compulsion on her students to do them. For example, her students were told very precisely the 'nature of the strategy' that they should use to read the modules - that they were to use a lot of their own initiative - and for the first two modules the lecturer 'kept a very close watch' on what they did eg they were to hand in on separate sheets of paper all the activities and assignments required of them in the modules, specifying that the students would get no grades if they failed to submit them. In actual fact the lecturer, unknown to the students, graded only the assignments. She rationalised that she was 'policing' the activity of students because she felt that "they lack direction mostly because they were so spoonfed so everything that they have to do would be told first then they would...and reading instructions they are not used to that kind of directive..." In the subsequent week Lecturer H based her tutorials on the modules clarifying the more difficult concepts that the students had encountered. She further reinforced the students' understanding with an additional hour of blackboard activities of exercises and examples which, although of her own devising, were related to the modules. By the third module Lecturer H indicated:

"When I discovered that they're comfortable with the use of the new strategy, I allow them to only work on the final assignment of each module...I leave them to have the responsibility..."
2. **Lecturer G** indicated that he used the modules to update his own knowledge in the subject area and left the students completely on their own to utilise the modules. Discussion was only initiated if the students encountered problems. So from time to time he would verify certain passages or difficult concepts. Because his students had difficulty with Modules D to G on Test Constructions written in English, he supplemented these areas himself.

3. **Lecturer J** followed the plan of work that I suggested to him. He managed to complete the modules within the term. He indicated that he gave an introduction and explained to the students how to use the modules. He then distributed one module per week and in the subsequent week he discussed the difficulties the students had encountered in the modules. In the case of assignments, the students completed those in Modules A to C but did not do the later ones because they were in English.

Clearly, the lecturers in STTI used the materials in two ways. On the one hand, the ILM have been used initially in a very structured systematically guided manner progressing towards more flexibility in which students were slowly directed towards assuming more responsibility for their own work. On the other hand, the ILM materials were used with a certain amount of flexibility from the start. This did not place definite demands on the students to complete all the activities and all the assignments on time. However, I had the impression from the interviews, that Lecturer G had more interactive discussion sessions with his students on the ILM materials in the subsequent tutorials.

10.4.1.2 **Reactions of students**

In terms of their students' reactions, the lecturers perceived that at the beginning they were excited, but after the initial impact they were showing signs of displeasure. However, the students were seen to slowly become receptive to IL. The following quotations serve to illustrate the finding.

At the initial stage:
LH: "Students' reaction to the use of the module initially was one of excitement because it's something new...it is getting away from the old lecture method but by the third module they got very tired...

LG: Earlier part there was quite a lot of enthusiasm shown from the work that they did...

After the initial impact the students were seen to be less responsive to IL and generally unhappy.

LJ: "Quite a lot felt that it was strange for modules to talk to them. They looked forward to the discussion more. They only took 1 hour to browse over when doing the test...could not understand...This is something new...They are so used to being given direction and seeing a person giving that direction rather than an unseen person speaking through the printed forms. So because of being too used to that kind of approach in teaching the modular kind of instruction puts them off but I think with time maybe they might get used to it."

They were not too happy because as Lecturer H observed, the students generally felt that:

"They were not getting enough in the sense they are not learning. The students have this idea that when the teacher is not talking he is not teaching. When there is silence there is no learning...Informally they told me they couldn't understand it. I said 'why?', they couldn't answer why; they could not understand which means either you didn't read or you just think it is unimportant for you to read carefully...I felt that probably it's the attitude more so than the strategy itself and the material itself."

but the students were seen to change their attitude slowly as these quotes suggest.

LH: "I felt that after a while they got used to the system..."

I: "Did you perceive a change in attitude as they progressed?"

LJ: "Slowly, but I think surely. It's quite a slow change."

10.4.1.3 Effects of utilisation of ILM by STTI lecturers on students' reactions

Although it is not possible to accurately suggest the specific factors that affected the students' reactions, there is an indication that the manner in which the ILM were used produced different reactions among the students after the
initial impact of the innovation. From the data in Table 8.2 p. 8:7 and comparing groups 06, 07 and 08, group 06 consistently gave the higher percentage responses to the lecture in terms of:

<table>
<thead>
<tr>
<th></th>
<th>Group 06/LJ</th>
<th>Group 07/LG</th>
<th>Group 08/LH</th>
</tr>
</thead>
<tbody>
<tr>
<td>knowledge</td>
<td>63%</td>
<td>53%</td>
<td>50%</td>
</tr>
<tr>
<td>understanding</td>
<td>97%</td>
<td>74%</td>
<td>79%</td>
</tr>
<tr>
<td>interesting</td>
<td>77%</td>
<td>58%</td>
<td>50%</td>
</tr>
<tr>
<td>contact with</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lecturers</td>
<td>67%</td>
<td>47%</td>
<td>46%</td>
</tr>
</tbody>
</table>

The results shown by the responses of group 06 seem to confirm the view of their lecturer that his students 'looked forward to the discussion more' after they had briefly browsed through the ILM. (p. 10:6)

Lecturer H's students also favoured the lecture but showed higher responses to the following facets in IL.

<table>
<thead>
<tr>
<th></th>
<th>Group 06/LJ</th>
<th>Group 07/LG</th>
<th>Group 08/LH</th>
</tr>
</thead>
<tbody>
<tr>
<td>retention</td>
<td>33%</td>
<td>32%</td>
<td>39%</td>
</tr>
<tr>
<td>work harder</td>
<td>77%</td>
<td>63%</td>
<td>86%</td>
</tr>
<tr>
<td>work efficiently</td>
<td>37%</td>
<td>53%</td>
<td>68%</td>
</tr>
<tr>
<td>reading</td>
<td>17%</td>
<td>37%</td>
<td>24%</td>
</tr>
<tr>
<td>listening</td>
<td>57%</td>
<td>58%</td>
<td>12%</td>
</tr>
</tbody>
</table>

An interesting final outcome of the result shown in Table 10.1 was that students in group 07 who used the ILM and did less both by way of quantity and structuredness, indicated the highest response for the lecture. Group 06 who seem to have had some experience, gave a lower response to the lecture than group 07, while group 08 gave the lowest response to the lecture method in terms of choice of teaching method.
<table>
<thead>
<tr>
<th></th>
<th>IL</th>
<th>Lecture</th>
<th>Both</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>06</td>
<td>33.3%</td>
<td>60.0%</td>
<td>0.0%</td>
<td>0.7%</td>
</tr>
<tr>
<td>07</td>
<td>10.5%</td>
<td>78.9%</td>
<td>5.3%</td>
<td>5.3%</td>
</tr>
<tr>
<td>08</td>
<td>39.3%</td>
<td>46.4%</td>
<td>3.6%</td>
<td>10.7%</td>
</tr>
</tbody>
</table>

Table 10.1 Choice Of Teaching Methods By Groups 06; 07, 08 of STTI

It may be possible to suggest that there is evidence of the gradual change in the students' attitude to study habit that lecturers H and J referred to on p. 10:6, and this change may be due to the manner in which the ILM had been utilised.

10.4.2 In FEUM

10.4.2.1 Utilisation of ILM

Of the eleven lecturers whom I interviewed, seven tried to incorporate the modules into their Methods Course. Of these, four were lecturers of the Malay Language Methods groups, two were of the Science and Mathematics Method group, and one of Civics Method group. Nonetheless, I interviewed each of the four other lecturers who had, to a certain extent, used the ILM in part in order to get a balanced perspective of the reactions of the lecturers to IL as a method of teaching.

Five lecturers in FEUM indicated that their students used the ILM fully in the sense that they studied Modules A to C (6 units). There were two ways in which the five lecturers were generally alike in their use of the modules. They usually gave a briefing on what students were to do at the beginning and generally they distributed the modules unit by unit ie one unit per week. The differential treatment of the modules was in the manner in which each lecturer conducted the tutorial thereafter. In this the lecturers' approaches differed
tremendously. I shall label these five lecturers in FEUM as Lecturers K, L, M, N and O, and the rest as P, Q, R, S, T, and U. Some verbatim quotes may help to demonstrate the rationale behind the approach that each lecturer took to carry out his/her respective tutorials.

Lecturer K gave out Module A, unit 1, without any explanation except to encourage the students to work among themselves and to hand in the assignment. But the lecturer indicated some disappointment. She said:

LK: "I was quite disappointed in the sense that I didn't see the students use it as I had wanted them to use it.

I: How would you have wanted them to use...?

LK: I wanted them to read word for word...but I think they were not told...they were probably so used to just reading what they like...I thought they could have missed some finer points...I found they were vague about the whole thing either because they didn't read it well...or because they didn't understand or there was no effort...So I had to ask them to do the assignment again...for the second set before they worked on it I went through generally explained what it was all about and how they should have done...they had to read it if possible word by word not one letter missing not one word they shouldn't miss any word, they should mull over it not just read through...they could have taken it rather lightly."

Lecturer K went on to explain that at subsequent tutorials after Module B, she went through the module to establish whether the students had really understood it. By Module C she reverted to her first method ie she gave them the modules without any explanation. I asked her whether she had found any difference in the quality of her students' work between the first, second and third methods. She answered:

"The second one was definitely an improvement...they were more aware...for the third the quality didn't improve very much...just the same as the second...with the second they really did know whereas the first one they didn't know what it was all about. Probably it was the difficulty of the material...I wasn't sure...the second (assignment) was much better than the assignment they had in the first.
I: You said that it might be the difficulty of the material.

LK: I guess what I meant I wasn't sure that in the first one it was because they found it difficult to understand... It could be much more difficult to them because it was the first exposure... I don't think that the first module is much more difficult in the sense of language or the clarity of explanation. As a matter of fact I would think the first one is much easier than the second and the third. So by difficulty what I meant was first exposure rather than understanding.

**Lecturer L** gave her students a briefing at the start and then distributed a unit each week during which time she insisted that they do their activities and assignments and submit them punctually after a week. She returned the assignments to the students two days later. She had her own rationale for the approach she took as reflected in the following quote:

LL: "...in this respect I differ from the other people I wanted to check whether they actually use them or not because I thought if I didn't do that some lazy ones... I was afraid there might be some who might not do... I think it's useful and I wanted all of them to look through it, do it... if they didn't do that they would not be able to think to write the objectives well... this year I can see a lot of difference in the objectives... they really were stating it clearly and I think it is because they used the modules."

At the tutorial, the modules were returned to the students. They were given time to look through them before Lecturer L discussed any misunderstandings or weaknesses which she had gathered herself from her assessment of the students' work. Together the students and lecturer discussed them by making direct reference to the relevant pages. Where there was controversy between the module writer and Lecturer L over certain answers, she tried to iron out the issues by discussing them, and the students were left to reflect on the two alternative answers.

**Lecturer M** incorporated the ILM within his own tutorial times and spent six contact hours with the students. Initially, after a briefing session, he intended that his students would work independently on Module A outside the class hours so that the tutorial time could be devoted to a discussion of the contents of the modules. But Lecturer M found that this strategy did not work because half the
students did not finish the modules. The students did the subsequent modules in class, working on their own very silently.

"Very silent in the sense that they could follow mostly what is going on and not much questions being raised except some Sabah and Sarawak students. They are not very clear about the Bahasa."

Although Lecturer M intended to use the six units in six hours this was not possible because of the pressure of other activities in the faculty in which the students were involved. So after the six hours he gave the students the modules to complete at home. He collected each module from them whenever they finished the modules, telling the students that they would be given marks. In actual ract Lecturer M said he did not give any grades.

"I just look to make sure that they work on it...I had a suspicion that some are not working and that is why I ask them to write on a sheet..."

Lecturer M indicated that he had made a special effort to discuss the modules towards the end of the course.

Lecturer N gave, as did the other lecturers, his students a briefing at the beginning and then distributed Module A, units 1 and 2, and, subsequently, one unit per week for succeeding weeks. He found the time between 5-7 days per unit to be adequate for the students to cope with the ILM. Lecturer N had used the ILM completely with a view towards responding to me later in terms of reporting to me what the students reactions were towards IL and ILM. Consequently, his contact time with his students was devoted more towards eliciting students' responses to certain pertinent issues related to the module feedback questionnaire (Appendix B4) which was attached to each module. He also asked further questions which he felt were pertinent to ask, such as whether or not students peeped at the answers to the activities and whether or not they enjoyed working through IL. The students were in a sense verbalising their responses to Lecturer N.

Only where there were problems encountered by his students such as in Module B, (there was disagreement over a question and the answer) Lecturer N spent a little more time
discussing those. Otherwise, very little reference was made towards discussing the contents of the modules. It would appear that in a sense the group of students under Lecturer N had used the modules almost entirely on their own without explanation of the contents either before or after they studied through the ILM.

Lecturer O had taken a slightly different approach. In addition to his briefing ie explaining the format and how the students should learn through a module step by step, to treat it entirely differently and do the exercises, he emphasised to the students how the ILM were related to lesson planning. His rationale was:

"...it was the first time they have been exposed to the module so I very briefly explained the content of the module in the first two modules A and B...I was interested in relating emphasising, say relate to lesson planning because this is important...this is something new The possibility of them taking it home and just keeping it aside. When you show it is related to lesson planning there could be a chance they might make an effort to read it. This is one thing I observed in our students...you just give the material like that, they take it home and they keep it...so the next session I had...it was not exactly a workshop session because I had about sixty students."

Lecturer O took a slightly different approach from other lecturers. He used a questioning technique that was followed by discussion. The reason he gave for this approach was that the students

"already have the content so to speak after they've read the module so ideally instead of repeating any content to them question/answer will be the best... The problem I found in most tutorial sessions is getting students to react because they don't have the content area."

Lecturer P like Lecturer N gave out one unit per week but did not hold any tutorial or discussion before or after the students had worked through the ILM. She used the activities which the students had completed and handed in to grade the students. She did not use the assignments for grading as she felt that they were too easy.
Lecturers Q, R, S, T, U had used the ILM to various degrees of completion. Some had not used the ILM systematically using basically the lecture method with little reference to ILM. Some had used one or two units of a module and had not got any assignments returned. In this respect it was difficult to gauge the students' reaction either to IL or the ILM. However, it was still relevant to elicit the reaction of these lecturers (p. 10:8). Section 10.3.2.3, p. 10:17 deals with this.

To sum up, the ILM appears to have been used by FEUM lecturers in several of the following ways:

1. Where the lecturer used a very structured and closely guided approach from the beginning with ample feedback and reinforcement to the students all through as was the approach taken by Lecturer L.

2. Where the lecturer handed the students the ILM and left them entirely on their own to carry on with their assignments and activities. Lecturers N and P used this approach although Lecturer P was more vigorous in expecting the students to submit activities for grading.

3. Where the lecturers started initially with complete flexibility leaving students to work through the modules on their own outside class hours. Lecturers K and M later found this approach unsatisfactory and each reacted differently. Lecturer K resorted to a more structured approach and guided the students in their approach to study through the ILM. Lecturer M on the other hand made students do the subsequent modules in class. While Lecturer K discussed for about 20 minutes issues or problems arising from the ILM during subsequent tutorials. Lecturer M spent some time at the end of the course to discuss the ILM.
4. Where the lecturer suggested that students work through the modules and try the activities and self-test in detail, but did not compel students to submit assignments. He started the students on one module and then followed it through with a tutorial to discuss the students' problems arising from the ILM. He was not able to follow the process through to the third module, because of time constraints. His students did not return any assignment because it was optional. Lecturer U used this approach.

5. Where the lecturer gave advanced organisers in the sense of explaining very briefly the contents of the modules and how they were related to lesson planning. At the tutorials question/answer followed by discussion technique was used. Lecturer O used this approach.

6. Three lecturers indicated that they used grades as inducement to ensure that their students worked through the ILM seriously.

10.4.2.2 Effects of utilisation of ILM by FEUM lecturers on students' reactions.

As in STTI there appears to be a relationship between the manner of utilisation of ILM by the lecturers and students' reaction. The results of the responses of the FEUM students tabulated in Table 8.2 p. 8.7, can also be explained in the light of the lecturers' utilisation of the modules.

Discrepancies in the students' responses can be found between:

i. groups 09 and 10 (Maths and Science)
ii. groups 09, 10 (Maths and Science) and 11, 12, and 13 (B.M.* groups)
iii. group 14 (B.M. group) and 11, 12 and 13 (B.M. group)

Group 09 received considerable guidance from Lecturer M (p. 10:10). They were induced to complete assignments with a view to receiving grades. Group 10 under the supervision of

*B.M. = Bahasa Malaysia or Malay Language
Lecturer N (p. 10.11) worked very much on their own so that while working through IL materials, they received less feedback of the kind that group 09 received. This group of students were more positive in their responses to the lecture as can be seen in Table 8.2 compared to group 09 students. More students in group 10 indicated that they 'understood' the lecture better, worked harder in lectures, and had more contact with lecturers in the lecture situation. I envisage that the contact that the students had in mind in this case was on an academic basis because as Lecturer N indicated, he had not spent tutorial sessions to go over the ILM. Consequently, students may perceive this lack of contact with the lecturer in IL. What was interesting was that in terms of choice of method between IL and the lecture, as many students in group 09 as in group 10 chose IL.

It may be noted in Table 8.2 that three of the Malay language groups preferred the lecture, although they had been closely supervised by their lecturers K, L and P when they used the ILM.

Perhaps Lecturer K's comments might be pertinent here. She had found a great improvement in the students' performance in the second assignment after she had explained in detail to them the format of IL.

"I said that generally they were happy with their method and I'm not very sure now whether they are happy with the method by using the modules or because they were happy because I used the modules as an aid to my teaching...So I think when reflecting back what was done by me was actually using this module to help me more than you know...Originally, of course, they did it and then when I found that they didn't understand so I sort of went through again with them so I was using it like as a...what I wanted to teach them use this but making them go through...I was very happy in that sense too because I was very happy to make them have some activity you know rather than I said you read it up on this and discuss and generally I don't get that much response but-by going through this the response is more...more-satisfying to me at least. So probably the perception was bias in the sense because I was
happy using it to help me but I thought they were happy with the method and with the modules...I guess it's the same thing applies they were happy with the modules because they could keep it and they were happy that I referred to it you know they have something solid and the nature of the Method Group is that you don't have any text book."

Lecturer L was also very concerned that she might be forcing the students.

"I cannot help influence them...sometimes I didn't even realise that I was doing that...because I think it's useful and I wanted all of them to look through it..."

In the case of these groups it would appear that the students may continue to perceive the lecturer as a presenter of knowledge and less as a facilitator and the ILM as back-up materials. Seen in this light, they probably were associating these more to the lectures and to the lecturers' competence and, consequently, indicated a preference for the lecture.

Looking at the way the lecturers utilise the ILM and students' reactions in terms of their responses to Questionnaire 2 (SPIL), I am led to speculate that the discrepancy between Maths/Science students and Malay Method groups may be attributed to:

(a) **Subject discipline:**
Maths and Science students are more independent in their approach to study, therefore, they adapted to the new teaching mode readily. In fact, they rather preferred it. The Malay Method groups were more dependent on the lecturer and preferred to be taught in the traditional mode although there is indication that, given time, and placed in a teaching mode requiring self-reliance, they would become more receptive.

OR

(b) **Difference in language base:**
Unlike the Maths and Science groups, the majority of the Malay Method groups were mostly from the Malay medium.

Of the two, I feel that (a) is the more plausible because (b) does not hold water in the light of the reaction of group 14, another Malay Method group. Group 14 worked
through the modules very much on their own. They also had more contact with the lecturer in lectures but in terms of choice group 14 chose IL. In the case of group 14, their Lecturer U did not provide sufficient feedback, reinforcement and compulsion as the other three lecturers did.

Further evidence that the reason may be due to a difference in subject discipline is the view of one lecturer which suggests that Science students are very precise in what they want and, therefore, prefer learning through IL. I quote:

"...I notice that a module tends to be very very precise on what is to be read and your activities are guided...I think this is good for students especially in the sciences who are doing social science...sometimes their performance in the social sciences (referring to education courses) is very bad. BSc Ed students want a lot of guidance. They don't want to read because of the science orientation. They are very precise in what they want. Arts students are more relaxed, easy going, maybe they might find the module a bit too restrictive...I'm not very sure."

Effect of IL on lecturer

The analysis seems to suggest that the effect of IL on student learning is not only to be perceived from the perspective of the students ie how they have learned through it, but it is also to be perceived in terms of its effects on the lecturer and how the lecturers utilise the materials, whether as an aid to teaching in which case students may still not perceive their function. However, this has implications for further research.

10.4.2.3 FEUM students' reactions as perceived by lecturers

I shall now briefly summarise the students' reactions to IL and ILM as the lecturers' perceived them.

(a) A positive point of view:

1. Students were seen to be not negative towards IL. On the whole the lecturers perceived that their students did not contribute negative reaction. The students, the lecturers perceived, were generally positive towards IL as a mode of
teaching, although at the beginning there were mixed reactions. This contrasted with the finding at STTI where the students were seen to hold relatively negative views towards IL.

Lecturer L observed from the students' facial expression that in the beginning they worked through the ILM grudgingly, but in later weeks they became 'more interested'.

"Later on...it so happened I started on the lesson plan...and then I think later on they were more receptive to this whole idea of using the modules...towards the later weeks they were more interested in the modules in spite of the fact that C was the hardest...I could see more interest."

Similarly, Lecturer K observed that her students were happy after Module B. She was of the opinion that by this time they were aware of IL and had got used to it. Lecturer U expressed a similar idea when he suggested that at the beginning the students were taking more time to work on the modules because the students were not used to modules.

"Not used to modules so they have to read very slowly...3 hours sometimes 4 hours...perhaps it is also the difference in ability among the students themselves..."

There was evidence in the students' responses in Questionnaire 2 (SPIL) that they were taking more time in the initial stages because IL was new to them and that with later modules they got used to it and spent less time as the following quote suggests:

02:23 At first when the modules were given I felt reluctant...learning not used to it...at first reading it was difficult to understand so I read several times...takes time then I can understand...perhaps because its new.

(T)

ii. Students were seen to apply knowledge acquired in IL

Lecturer O used the question/answer technique in tutorial. In response to my question on the next page, Lecturer O replied:
I: "Have you found a different reaction of students to your questions in a situation where the content was acquired from the modules, to a situation where they acquired the content from lectures?

LO: I find with the modules their responses to questions is slightly more direct more accurate. See the problem with lectures is that you have a tutorial after a lecture right? There's the possibility a large percentage who don't read the lectures. Here's the case where module when we emphasise the module for them to read somehow or other there is a tendency...there was more question asking.

I: Students asking?

LO: Students asking questions. I ask questions and they do react. Normally I find it very difficult...Students are fearful of reacting to questions because they are not sure of the content area...I get the feeling they want written content."

Similar observations were made by two lecturers in STTI.

LJ: "Answers to questions which might crop up as a result of reading the modules. The discussion is much more lively - more fruitful."

Lecturer H explained that she found students more responsive in tutorials.

LH: "...they questioned me.

I: Is there a lot of that?

LH: Yes, quite a bit.

I: How do you think that compared with the normal traditional system?

LH: Very little interaction in the lecture system because I feel one thing there is a rush because you tend to explain more...there is no means for the students to find out about the topic of our teaching...in this modular instruction for sure the students have gone through the topic..."

iii. Students showed signs of slackening towards the end. In Chapter 9 there was some evidence that the students were showing signs of losing interest with Module C. The lecturers attributed this to:
- Materials divided into too many small segments:
  "Too many segments...being postgraduate students I think...the material is too simple...they got a bit bored towards the end...maybe they could be collapsed."

- Lack of examples:
  Also related to the content of the ILM, Lecturer M perceived that his students wanted more examples.

- Frustration with the language:
  Lecturers L, M and N detected students' frustration with the language. The Malay students were not too happy to read the translated version of the modules because of the poor Malay idiomatic expressions. There was controversy about this issue because another Malay lecturer indicated that he was not aware that the modules were translated. I, personally, am of the opinion that the Malay version of the modules, being translated, had certain limitations of the kind identified by Lecturer L's students.

  Lecturers M and N found that students from Sabah and Sarawak found it difficult to cope with the Malay language. The lecturers' observations of their students' reactions corresponded to the feelings that the students had about the language issue. This has been pointed out in Chapters 4 and 8.

- Too much reading:
  Lecturer O from verbal communication with students in the discussions in the tutorials found that:
  "the majority did read the module and do the exercises and self-test...some said too much reading to do...this, I think comes out from the natural tendency of students to listen..."
(b) A negative point of view:

One of the lecturers, Lecturer Q, who used the modules in part, was able to give me some feedback regarding his students' reactions. The overall reaction of his students appears to be negative. The materials had too much detail and were difficult to apply. The students did not understand what objectives were because according to the lecturer they had no experience in teaching. I suspect that in this case the evidence seemed to indicate that the students' reactions corresponded to the lecturer's own conception of IL. This is illustrated by the following quotes:

I: "How do you see individualised learning? What is your own concept of IL?

L: I guess to me IL means where students learn themselves what they need to know...I guess through learning through the help of the teacher...if they have any question.

I: What kind of help do you envisage then?

L: In our situation...the help that they need from the point of view of the lecturer where we need to force them to answer certain test questions so that they would improve their learning...in order to enable them to answer the test question and then the teacher marks them."

And to his own attitude towards what Malaysian students are capable of:

L: "When we ask them to read something they never really read the thing unless we give them work after that...They must do it in the class. If we ask them to do it just like that they won't do it. The teacher has to see them do it in the class then it (modules) would be very useful...Our students themselves are not assertive enough so we have to force them and the only way to force them is to ask them the test questions (in the modules) in class.

I: Why do you think...?

L: I guess our students are not really interested in learning. What they are interested in is in some certificate...I don't know it is my opinion with our Malaysian students. If possible they want to get good grades without doing anything...So usually they won't read anything unless they are sure that by doing that they can get a good grade..."
This lecturer's estimation of Malaysian students is reflective of the attitude of many educationists in Malaysia. As this touches on an aspect of student learning, I shall return to this issue in section 10.5.

Lecturers K, L, M, N, O and P were very much aware of the phenomena of what I would label as Malaysian Student Syndrome (MSS), but being aware of it they were taking steps to compel their students to utilise the ILM in a systematic way and the indication from what they said was that the students were reacting in a positive way. There was much evidence in Chapters 8 and 9 to support the contention that Malaysian students are capable of learning by themselves if provided with the right environment and motivation. Time is the only factor because, as some lecturers in FEUM and STTI and the students themselves remarked, they have been used to spoonfeeding from primary school right up to secondary and tertiary education, so it would be unrealistic to expect students to change their attitude and study habits overnight.

10.5 LECTURERS' PERCEPTION OF THE IMPLICATIONS OF IL ON STUDENT LEARNING

10.5.1 Underlying Assumptions about IL and Malaysian Student Learning

In the previous subsection, I have noted the fact that generally lecturers seem to hold a particular view about the characteristics of Malaysian students which I labeled as Malaysian Student Syndrome. Generally, the views of lecturers of the implications of IL on student learning appear to be based on a recognition of certain problems and issues surrounding the Malaysian students. The majority of the lecturers I interviewed recognised that Malaysian students are generally dependent on their teachers, are exam oriented and lack motivation, are averse to reading being so used to listening and many have problems coping with the Malay language.
However, I perceive a difference in the reaction of lecturers to this MSS and their treatment of it. This difference evolves from a different set of assumptions held by the different groups of lecturers. On the one hand a very small group or minority of lecturers appear to place the onus of MSS on the students themselves. The views of Lecturer Q on p.10.21 is a case in point, although at some point he perceived IL to be advantageous but not for Malaysian students and not "for the time being...it's really difficult because our school system is academic oriented...if the teacher discusses, the students will say the teacher is useless. Our students want something concrete...I guess we cannot blame the students for we are exam oriented..."

It is not so much the exam system that is subject to criticism but the quality of it. Examinations generally were not more than what the students 'learned' from the lectures (Lecturer L and O p. 10:27)

The other group of lecturers held a different set of assumptions and put the onus not on the students but on the system which is examination oriented and teacher centred.

"...I think it is basically the pattern of our teaching where the teacher is the centre of the whole activity..."

It is the product of a learning environment which lacks stimulation where habitual reading on one's own is not encouraged sufficiently and where learning is relatively passive as this quote illustrates:

"In the Western educational system children are motivated to think more or less adopting what we call the discovery method...Our school teachers tend to practice underlining textbooks that make things worse."

This characteristic style of learning starts at the baseline of primary education and goes right up to secondary education:

I: "So you are saying that attitude of wait and receive could be due to?

L: The very structure of our education from primary (STTI) up to secondary level...suddenly, we are going to introduce innovation which they are not used to hence they will have mixed reception."

and it is a vicious circle. There was also a hint that not enough trust had been put on Malaysian students to be responsible for their own learning:
L: "I would not agree that Malaysian students cannot (FEUM) be put on an IL programme. I have a feeling, this is only a hunch that I have, they are going to like it better...I know that some people doubt the fact that whether you can trust the Malaysian students that if you don't give them a structured programme they might not do it at all, but I always feel that unless you do it you'll never know and once you do it and if they know there is no hanky panky you trust them they would do it..."

So the reaction of different lecturers to IL and its impact on student learning has to be seen in the light of the different premises they hold. Furthermore, their perception of IL was also affected by their conceptualisation of IL. The first group of lecturers perceived IL as an entirely student-directed learning method where teachers do not play a significant role. This differs from the perception of the second group of lecturers who perceived IL, in the Malaysian context, as students working independently on their own but where direction from the teacher in terms of limiting the time, and providing further clarification and activities, as very crucial for maximising student learning.

Having summarised what I perceived to be the assumptions underlying the thinking, I now present some evidence to describe the views of the lecturers to IL and its implication on student learning. In perceiving the effect of IL on student learning they invariably also compared it to the lecture. The lecturers saw the implications of IL on student learning in a few different ways.

10.5.2 On Student Study Habits

In one instance the lecturers perceived that IL may have the effect of helping to change students' study habits by shifting the focus of teaching from the teacher to the learner. In a sense I feel they are dismissing the idea of MSS as a mere myth by recognising the potential of IL for student personal development. The lecturers' perception of IL is expressed in some of the following quotes:

(a) On spoonfeeding:

On an issue of Malaysian students being used to spoonfeeding* Spoonfeeding was defined by one lecturer as "I give them everything in my lecture-notes and when I assess them in the final evaluation of the course, I expect them to vomit out what I have said."
90% of the lecturers expressed disagreement.

LR: "This is a preconceived idea and you reinforced your idea. You spoonfeed them and therefore they say they are used to spoonfeeding. If you think of the students in a different way and you don't spoonfeed, you may be surprised that they may be able to do a lot of things themselves...There's so much creativity that we are not tapping..."

LL: "The statement is quite irrelevant...I somehow feel that the Malaysian students are not taught to read...look up additional information, it is just lazy...so even in the form of IL which if they really understand what IL is, it is better than lectures, so even in the form of IL they say 'oh this is extra reading'...The habits are so ingrained in them..."

LK: "I wouldn't agree to that. I admit that they are used to spoonfeeding but at the same time I don't think it is a helpless situation. They are used to spoonfeeding, they like it now I'm not sure whether they like it when they are exposed to something else. It is something that they have no choice..."

LO: "Okay that's true but then why do lecturers say that. Students don't read...we know the problem...they've got their reasons...some of them just say they can't get hold of the materials and now the language problem...so what do you do?...It may be true because we have perpetuated it...we have spoonfeeding because it is a vicious circle, we go on and on..."

Lecturer N indicated that in general the students said they tried to tackle the questions, self-test and activities themselves, without trying to look at the answers. That to him "would be an indication that they have enough desire to try themselves before they look at the answer."

In the light of the perceived issues, the lecturers saw that IL under certain conditions could supplement the lecture because it produces some desirable effects on student learning as exemplified in the following quotations.

LO: "If you want so-called creative people, people who have initiative and who want to do things for themselves...critical thinking maybe things like these modules students learn on their own, learn to read...and then with the kind of activities suggested in the modules, the questions asked, they would provoke thinking...It is an excellent way...I think we will have better university students much more critical...I like the part of modules when it comes to application of knowledge."
Lecturer K, although perceiving the similarity of IL with the lecture in the sense that in both modes of teaching notes are given, pointed to the differences between the two modes of teaching:

"...student perception and student comprehension of the lecture is not 100%. I am talking about my own experience sometimes you are busy writing something quite minor and the lecturer says something which is more important, then you don't have time to write that down..."

However, in IL she indicated:

"...they have to make a lot of effort to get the facts. They just cannot be passive. They just don't listen. The activities make them learn and in the lectures what I mean by spoonfeeding there's hardly any activity. There's supposed to be a lot of cognitive activity which we don't know whether it happens or not."

A lecturer in STTI expressed a similar view:

"...it is not so much of what they can internalise, it is how it is being done. I see teacher and materials to be alike both are teachers...what I see in the individualised instruction that is different from a teacher is that here you are working at your own pace, your progress is tabulated, you know your rate, you know where you are heading, in what level you are. I'm all for criterion testing whereas you are very norm...you sort of follow the crowd...Students here would be able to have more initiative, work more on his own...in lectures he's lost in the crowd...I feel there's a tendency of being reticent in the traditional type of learning..."

On the other hand, as a counter argument:

L: "...modules or self-instructional materials for weaker students tend to limit their scope so what is not in the module they don't know. For the better students they might go beyond the modules...In lecturing the weaker students will probably be forced to think along the lines of the brighter students...they will have to try and keep up with the average performance of the group...But in modular instruction the latitude given to good students will probably be limited also."

Lecturer L expressed the opinion that people who subscribe to a MSS and contend that Malaysian students cannot learn through IL because they are used to spoonfeeding, are labouring under a misconception of IL.
LL: "Those people do not really understand... because you say learn on their own they mean they may have this idea that you give them a book and they look and summarise the chapter... important points. Whereas at the lecture normally the lecturer gives the main points, there's no need to look any more maybe in that sense spoonfeeding, whereas here they've to look for it themselves... Probably they are saying IL is not... The writer of IL has already picked out the most important things, explained as carefully, as clearly as possible... those concepts students are supposed to learn."

The lecturers did not perceive the plight of Malaysian students as a 'helpless' case and saw that IL would have the potential of developing students' creativity and responsibility towards their own learning. A lecturer in STTI suggested that although it was too soon to tell, IL can perhaps help 'change students' learning habits'.

"...It is too soon to really say but we can perceive that students may be less dependent on their teacher and be more comfortable with materials. Presently they are so dependent on whatever the teacher... they don't make use of their library facilities because they felt that's enough for exams whatever is in the lecture notes... so maybe in IL they find this a necessity to find things on their own... they would have to learn to be less dependent have more initiative with regards to getting knowledge."

(b) On reading habits:
Many of the lecturers I interviewed perceived that at the root of many of the problems of Malaysian students is their reluctance to read. One lecturer remarked that even from school students have not been taught how to read and use their text books on their own.

"The tradition has been that the students are not to use the text book in the classroom."

Lecturers L and O observed that it may even be the examiner's fault that students were quite happy to attend lectures and regurgitate because not much more was expected of them in exams.

"...I can safely say my students who never read anything besides my lectures..."
LL: "It (the lecture) is really a short cut...I think they feel why bother? I just sit there and listen very carefully, take down almost whatever as much as I can and then I just reproduce in the exam. They do not really look for more than just that. So the system itself does not encourage further reading."

Another lecturer perceived the advantage of IL but put the onus on the students.

"If we give them a chance they will prefer to learn by listening but then whether what they learn they will retain or not is a different matter. Of course they prefer just to sit down and listen. That's our Malaysian students' attitude...just sitting down doing nothing and then get good grades...While here (IL) you have to do it. From the point of view of the teacher its better learning by doing than listening."

One obvious consequence of the students' dependence on the lectures which had been alluded to was the preoccupation with passing examinations as the following remarks demonstrate:

"...we cannot blame the students because we are exam oriented - where the students will be asked questions based on the stuff - so what is important to the students is to get the stuff they can write during exams..."

The implication of IL it was perceived is to direct the students towards a greater self-involvement in their learning through reading the ILM because, as one lecturer observed, there is a difference in reading a text book, the lecture notes and ILM.

LK: "...if you read a text book you are reading a lot of other explanations...text books can be boring too and the modules can be boring as well but they are shorter and if they really use it as I thought it should be used, it shouldn't be boring in the sense that they are involved...reading a text book you are passive whereas here...when you read the modules you are reading but at the same time you're doing something..."

About reading from the lecture notes this lecturer explained:

"after the lecture notes reading is different because you are reading what you understand from what the lecturer wants to convey, whereas here I'm treating the modules as if they are lectures so you don't miss anything of what the lecturer is saying."
It was also perceived that IL can encourage and train students to read in a particular area.

"If students diligently follow the module I think they will read wider maybe it is itself a great technique, its a kind of training for some students to read materials in a particular area..."

The study has looked at the difference in reading from ILM, text books and lecture notes, but it failed to establish which of these three the students preferred. This has implications for future study. Clearly there is a strong indication that the lecturers were very concerned that students do not read and having themselves been briefly exposed to using ILM they perceived the merits of IL, if used in their own teaching context, but had some reservations as to the conditions in which IL could be viable. Section 10.5 p.10.32 will be devoted to this aspect of the lecturers' perceptions.

10.5.3 On Student Learning Approaches

It is significant how some lecturers tended to perceive the implications of IL on student learning from their own particular frame of reference in terms of their own learning styles. Lecturer L, for example, viewed IL as being suitable for slow students, slow here refers to students who are slow in assimilating knowledge.

"I think it is definitely a great help for slow students...with the lectures there is no repetition. In our Pedagogy course there are no tutorials so at least this is better than tutorials because students have the printed materials...Personally I'm picturing myself as the student because for me I can learn better that way given my own time and I read...it makes me nervous when I'm told that I've this lecture to listen to. With this IL you really can go over it study it...reflect and when you're not happy with whatever findings from the modules there is opportunity to check with the lecturer."

Another lecturer, N, saw IL as advantageous because students get thoroughly involved, but for himself he would prefer to read a text book.

"For myself I think I'm the kind of person who prefers just to read straight text books because it saves me time and hopefully I would not simply
read it and then just learn in a theoretical way
...so in my case the fact that I wasn't learning by
doing practical exercises would not be a disadvantage.
I can see that the students who have my way of
thinking would rather not spend time doing practical
exercises."

There appears to be two main arguments here both of which are
valid. Both cases represent SOL students who prefer to read printed
texts rather than to listen to lectures, and in both there is a
suggestion that each would not just 'read in a theoretical way',
an indication that they may tend to use a 'deep approach' in their
learning. However, there was one way in which they differed and
that was that Lecturer L saw 'learning by doing' as helpful:
"...they were doing something else, they were
practicing also..."

It is not clear, however, whether she herself would subscribe
to this. Lecturer N would prefer to take a short cut by reading from
a text book as this would save him time. He hoped that this would
not merely be theoretical.

There is much evidence from Chapter 8 that Malaysian students
are generally more inclined to adopt the learning approach of
Lecturer L if they are SOL students. This approach may correspond
to the learning approach that Lecturer R described. Lecturer R was
of the opinion that IL caters for

"people who would like to see the learning tasks
as very linear...item by item...who really need
to be brought step by step to be exposed to the
totality and then to analyse."

Lecturer H in STTI perceived IL in the context of this learning style.
"...(IL) is very skill based...you go level by
level until you have acquired a total skill needed."

Judging from the evidence that Malaysian students are generally
not taught how to read and extract information on their own, and also
from the evidence in Chapter 8, there is a great likelihood that.
the majority of Malaysian students who are SOL students prefer this
linear approach to learning. However, one lecturer observed that IL
may not be able to cater for students who are gestaltists who prefer
to see the whole first before going to the parts.
10.5.4 Practical Implications for Student Learning

Some lecturers viewed the implications of IL on student learning in relation to the practical considerations affecting the Faculty of Education curriculum. Most lecturers recognised the constraint of time which puts a lot of pressure on students. In practice the Faculty operates seven months in the year including teaching practice and the students are overloaded with courses and practical sessions. One lecturer describes the students' work schedule as starting at 8 o'clock in the morning with work up to 1 o'clock in the afternoon, and with afternoon sessions as well. The number of working hours adds up to about 8 a day. To these lecturers, ILM constitutes a compact comprehensive content which can aid the students in their learning and save time. The quotes below may illuminate some of the practical considerations which affect the lecturers' perception of IL.

LK: "The nature of the Method group is that you don't have any text book...it saves the students a lot of reading background reading. This is sort of compressed you have all the aspects all the most important things...it is a sort of condensed form and yet at the same time you don't miss anything...it is all there so that saves a lot of time.

LM: Essentially they don't have to search for materials. When we lecture we did recommend them to read certain materials or books. They will hunt for the materials in the library. I find that this sort of material that has been given to them is almost independent by itself. Students can use it directly. I think it is more time saving."

Lecturer O felt that lecturers asked students to read and the usual complaint was that students do not read. In his own experience he went on to say:

"They've so many articles to read...I always wanted material directly relevant to my lecture. I can't afford the time to hunt around for materials...Modules might give them a wider spectrum...you can say for elaboration read this chapter page this...that is what the student wants. I'm talking about immediate problem don't look at the hairy fairy that at the University students should be educated intellectually, should be avid readers...Our students just want to get first class honours if possible. So within the constraints that we have how do we build that within them...You don't give that 20 page reading list...subtly make them read more..."
To sum up, the majority of the lecturers were receptive to the idea of innovative teaching and saw that IL had implications on student study methods and habits, and learning approaches. Some simply perceived IL to have practical implications. The few who were not receptive, some lecturers suggested, were labouring under a misconception of IL and Malaysian students' learning capabilities. However, being receptive was not enough if the lecturers did not also perceive an innovation to be viable in the context of the existing structure which could not be drastically altered to take a sudden change. The following section looks at this issue briefly.

10.6 LECTURERS' PERCEPTIONS OF THE VIABILITY OF IL

10.6.1 Introduction

Chapters 8 and 9, and the early part of this chapter, have established the viability of IL in terms of student learning as perceived by students and lecturers. This section looks at the lecturers' views on issues of IL ie:

1. Whether it can be incorporated within the existing structure in the two teacher training institutions;

2. Its viability in terms of the lecturers' role.

10.6.2 Applicability in Teacher Training Institutions

The general feeling in both institutions was that IL has applicability within the context of the curriculum structure of the institutions, although some doubts and reservations had also been expressed. My impression is that it is immediately more feasible in STTI than in FEUM because of the nature of its curriculum structure.

STTI's new three year teacher training programme allows for a certain number of empty slots in the timetable for self-study or IL, and, presently, the Teacher Training Division of the Ministry of Education is introducing modular instruction in teacher training and is in the early pilot stage of writing the materials and applying them in selected teacher training colleges.
The lecturers in FEUM perceived two main factors which would render IL more difficult. Firstly, FEUM runs a very short one year course which effectively is only seven months,

"...the usual complaint of all our teacher training programmes in our Faculty of Education that we got too short a time..."

and secondly, there is a lack of coordination between the core courses and the Methods courses, so that there is a lot of overlapping. The quotes which follow reflect this general feeling.

L: "...my suggestion is this sort of material would be most useful if it is planned with Pedagogy and the Methods so we can cut down much of the overlapping that is occurring now...It can be done by one possible way that the Pedagogy sort of coming to discuss with the various cognate groups trying to get feedback from them first what are the basic things the need of each cognate group.

L: What is the place for self-instructional materials in the Faculty of Education...I can see that if the departments were well organised and that also integrate their offerings in a certain way and then the departments would know very clearly what they are supposed to be giving, then probably prepare self-instructional materials in place of that ideally I see that the course could have some self-instructional materials which students do privately as well as others offering other approaches like lecturing, tutorials to discuss some of the points made. With combination probably a more effective course will result."

It would be pertinent to mention at this point, that contrary to my intention, some lecturers were inadvertently giving their reactions in the light of how my own materials could be used within the two institutional structures, rather than to IL per se. So in a sense that coloured their perception to a certain extent. I feel this is unavoidable but by no means a disadvantage. In fact I feel that the lecturers were able to provide a lot of valid statements despite seeing the limitations of the ILM. Hence any interpretations of the lecturers' feelings with regard to the feasibility of IL in the institutional contexts, have to be seen in the light of this situation where some lecturers were actually talking about the usability of my own materials within a particular curriculum structure.

I shall now focus on some of the main considerations which emerged from the interviews with the lecturers in terms of the applicability of IL in their respective institutions. These considerations related to:
(a) Practical aspects which made IL viable;
(b) The mode of IL that would be viable;
(c) Problematic issues.
(a) Practical aspects:
Four aspects were mentioned as important considerations for suggesting that IL is viable.

- Large number of students:
  L: "...in D. Ed. I can see a place for self-instructional materials because with the large numbers of students there is thin possibility of getting to very much individualised work with students like lecturers helping individuals therefore you would need some SIM packages on particular topic but it doesn't mean that it would be on every topic..." (SIM refers to self-instructional materials)

- Lack of reading materials in Bahasa Malaysia and the language problem:
  L: "...their (students) problem was read (in English) and translate to Bahasa Malaysia. It's too time consuming.
  L: ...there's a place for IL in the colleges because of the fact that firstly we lack reading materials in Bahasa Malaysia so modules come very handy."

- Time constraint:
  This issue has been brought up in section 10.5.4 p. 10:31 and a possible solution was suggested

"...maybe the 20 hours of lectures may have twenty sets of modules...in our setting time is not the problem...time maybe like micro-teaching time...In terms of content giving there's enough content...but the part which I'm not so happy about is internalisation of the content finding its application of the content learned...In a lecture...the modules come after the modules so to speak takes it a step further...

How can you train a teacher 20 hours of Psychology preparing all you need to know about psychology so I think excellent would be the modules then a tutorial is followed in the methods...

Just to discuss the lecture in the tutorial I think it will fall flat. My experience with Malaysian students it will fall flat...Modules in terms of
teacher training if time is the constraint. Now the usual complaints come from students not used to read...you can’t I think it’s not fair to make them read too much because you got only ten weeks in the first term...I suppose the best work for them is to read modules..."

This lecturer perceived that time was generally felt to be the main constraint but he himself did not subscribe to the idea because he felt it was more a problem of internalising and applying the content. He felt that ILM in the form of modules can help to bridge the gap between this lack of extension in what students learn.

- ILM are simpler to read:

A fourth factor was seen as a psychological factor which is related to the structure and form of the materials.

L: "...module being what it is in terms of its (STTI) presentation, language it is simpler so students are not bogged down by text book language. They find reading simpler...it is conversational in nature so there’s no fear of not understanding...itself psychological."

(b) The mode of IL that would be viable

On p.10.33 the lecturers perceived that IL under certain conditions can supplement or complement the lecture. This was the view generally taken by those lecturers who felt that MSS was a myth. The majority of these lecturers felt that IL has a place in teacher training provided it is used in combination with other teaching methods such as tutorials and discussion, and that the self-pacing is limited by the teacher.

L: "Self-pacing in IL has been conceptualised as (FEUM) teacher directed...and not do when you like or do when I am motivated...but within the time that you set - 45 minutes or 2 hours - read it at your own pace...Self-pacing is only the speed at which a person completes the task not defining it very broadly..."

This is the mode of IL that is generally acceptable by the majority of the lecturers. Furthermore, an IL mode that was conceptualised as viable is also one which uses other complementary methods such as tutorials and discussion. Such an idea and its rationale is implicit in the following quote:
L: "I myself did not spend much time discussing the content of the modules just the feedback to the method. I can see the value of extra discussion. clears doubts in the mind of the students...the point is SIM self-instructional materials alone maybe a bit bare for students to manage. Some kind of combination of different approaches would be a better thing...they might be followed by further tutorial to discuss further aspects particularly in topics where due to...constraints of time you couldn't develop the topic very far..."

The lecturer quoted had used the materials without further interacting with the students and had found this to be a limitation in the use of ILM. When he had a brief occasion to discuss the content with his students, he found this helpful to his students.

Most of the lecturers felt that the lecture must be an essential complement to IL because it gives students confidence, and it is a convenient way to clarify difficult concepts in the ILM. Standardised views provide general impressions besides providing redirection and contact with the lecturer. The notion is embedded in this quote:

L: "The advantages of a lecture is for students who have very little confidence in themselves and then whenever they read they would like to have checked. For instance they pay attention to the lecturer to highlight the main points important points so 'I was right' or 'I was wrong'. Also lecturers whatever points they give out at a lecture would form some kind of a guideline to the student."

This perception is congruent with the students' feelings about the lecture which is reflected in much of the LOL students' comments in Chapter 8.

Similarly, another lecturer also felt that the lectures provide students with a sense of security in the sense that they prepare them for examinations.

"I disagree that it is (IL) a burden. I think you will make them much more secure...I can just imagine a student... lectures all nicely copied, modules all there - they can confidently go for exams. You must bear that in mind whatever is
said and done the final objective is passing the exams so that module must look towards preparation for exams..."

Some lecturers suggested a system of close supervision eg arranging

L: "a study time. During that study time a (STTI) lecturer is made available for any clarification at the time when they are reading the module so that should they encounter any problem they can be solved there and then rather than wait till the end of the week. Because by and large our Malaysian students have not been able to use free time that well...so this supervision is necessary to get them working...Although it is independent somebody should be around to help provide the climate for study..."

A lecturer in STTI suggested IL along the lines of Postlewait's audio-tutorial system as an ideal way of implementing IL in three steps. First, a general assembly session (GAS) which is a mass lecture which gives the salient features of the topic being studied in the modules. After that the students carried out individual study with a lecturer in attendance as facilitator. After the students had completed their individual study, they participated in small group sessions (SGS) of five to six students. This is where the lecturer interacts and discusses aspects of the module with the students.

(c) Problematic issues
This ideal concept of IL was seen to be theoretically viable but when the practicalities were discussed, certain problematic issues were raised. Even within the modest structure of the kind of IL that was envisaged to be viable, the lecturers raised several issues such as:

- Administrative difficulties:
   L: "Where the timetable is so rigid and the students (STTI) are also having other subjects to see to."
   There was also the issue related to the care of the materials, general production and reproduction of these so that there would be no shortage. It was suggested that a servicing agent should be employed within the institution to take care of these problems.
Lecturer time and attitude:

In some quarters IL was initially conceived as implying less work for the lecturers:

L: "...of course here it makes the teachers' work (FEUM) easier in the sense that the teachers don't have to bear much...is there to administer the thing...While in the lecture the lecturer has to prepare to talk to the students."

However, in terms of the teacher having to prepare the ILM, the lecturers perceived that very much more work would be involved. There was some apprehension about the reception that would be given to the new technology and whether the administration would recognise the implications it has on lecturer's workloads.

Lecturer role:

Perhaps the most recurrent issue to be raised was the implication of IL on lecturer role in module writing. The lecturers were divided in their feelings about who should be module writer; but there was general agreement that preparing modules should not be the task of a single person but of a team of subject specialists. I asked one lecturer whether he saw module writing to be one of the roles of the lecturer.

L: "Yes, definitely. I don't visualise my course (FEUM) being written by anybody else. I visualise if I was to make a module of my course it would be what I lecture...I think it has got to be both. I think he'll have to be a lecturer still and a module writer...I think a lecturer cannot just sit back and write modules."

On the contrary:

L: "No, I would not say that a teacher writes (FEUM) modules but a teacher as a member of a team might write modules for certain areas because module writing takes a long time...I would see the role of the teacher as module user."

I: "Who do you think should be writing the modules?"

L: Certain groups of teachers might be given time (STII) to write modules."
This is what is being done at the Teacher Training Division of the Ministry of Education where a group of lecturers have been identified to write modules.

L: "...there is a special body to do it at the (STTI) teacher training level so presently what we are doing now is we're training lecturers to write modules because they're the best people resource person to write modules on what they have been teaching so in that way they are more perceptive, sensitive to the needs of the students.

I think the direction teacher training division is taking now on this module writing aspect is in the right direction identifying certain lecturers to write modules...I think there is no problem where module writers are concerned."

In the final analysis, the utterances of one lecturer I feel sums up the general idea about the viability of IL in the Malaysian context.

"Any new ideas...will find resistance and individualised learning is no different... so if you introduce slowly...viable...any new system needs some pilot programme to see its feasibility...until such time bad habits have been rectified...I would like to think positive. At this time I won't say 'oh it won't work in our system' but you can help remedy certain things but it will take time...we got to go through teething problems."

This idea, however, only reflects the perception of a committed minority group within the super structure of academeia.

10.7 SUMMARY AND DISCUSSION

Generally lecturers in the two institutions perceived that IL is viable in teacher training, subject to certain conditions and within certain perceived limitations.

1. In terms of student learning
   - It was perceived that IL could have the effect of changing the study habits of Malaysian students from being 'spoonfed' and passive to becoming more active in their own learning.
- IL was found to be more suitable for students who adopt a linear approach in their learning but not for learners who are gestaltists.

- It has also been said that IL may not be suitable for promoting a discussive type of learning.

The majority of Malaysian students have been described as linear oriented and non-avid readers, and they are used to being told what to do. So I believe that the first primary objective of introducing IL is to help wean them slowly from this over-dependence on their teachers by providing them with learning materials which, though linear, will take them step by step in accordance with the directions from their teachers as they have been used to.

The suggestion that IL could not cater for gestaltists is interesting and very pertinent. However, it was not the primary intention of the study to investigate IL in terms of the two types of learners - linear learners and gestaltists. However, the issue which evolved merits mention so as to draw the attention of future researchers to its implications on future studies on student learning and IL.

2. **IL with a range of other teaching methods**

IL on its own was perceived to be 'bare'. It had to be used alongside other methods and the lecture was seen to be an essential component of this combination of teaching methods. The results in Chapter 9 supported this contention. What was not very apparent from the interviews was whether the lecturer perceived that the lecture alone would be adequate. The evidence in Chapter 9 was that students preferred a combination and not IL alone, or the lecture alone, reflecting a common conceptualisation between students and lecturers of a suitable mode of IL.

I also observed that students and lecturers' reactions to IL were related to the manner in which the ILM were used.
3. Mode of utilisation of ILM and its effect on student reactions

There was ample evidence that the manner in which the ILM were utilised, produced different reactions among students and also among the lecturers.

Generally, where their lecturers had used the materials in a very systematic and closely guided approach, the students appear to respond positively to IL, but tended still to prefer the lecture in their choice of teaching method. The likelihood is that they may be viewing the ILM only as the lecturers' back up materials.

The reactions of lecturers who have used the materials systematically were also positive towards IL. Perhaps it may be that their own attitude towards IL was positive and, hence, their use of the materials reflected their attitude towards the method. Except for one or two lecturers in STTI, none of the lecturers had used ILM in their teaching before this nor had they any exposure to it. The point was made that it may be more immediately feasible in STTI than in FEUM. Empty slots for self-study have been built into the three year academic structure of STTI. Implementation at FEUM, however, would be more difficult.

4. Finally, the main reservation expressed was the implication of IL on the lecturer's role, time and workload. Clearly, the lecturer's role would be one of facilitating student learning in the context of this mode of teaching and to oversee the students' general progress so that they do not procrastinate.

As to the role of the lecturer as module writer, the opinion was mixed. On the one hand, some lecturers perceived that the best people to write modules would be the lecturers themselves, while others perceived that lecturers should be module users although he/she can become a member of a team in writing modules. My own perception with regard to this is that preparing materials would be difficult, time consuming and,
maybe even expensive. However, as Unsworth (1978) suggests
"when comparing the resources required and benefits or draw-
backs from conversion of a course to self-study, due weight
should be given to those benefits (or drawbacks) which might
have been absent originally". To take a narrow view and look
for replacement value alone would be to undervalue the benefits.
Unsworth further suggests that

"to appreciate the value of self-study we have
to assess the worth and even the degree to
which we achieve some of the special benefits
discussed - self-reliance, the satisfaction
and motivation arising from personal achievement,
good staff-student contact (and) choice over pace
and degree of independence."

(p. 146)

But how we weigh these against the possible drawbacks such as
the cost of producing the materials, staff time and workload
remains an open question.
11.1 INTRODUCTION

Chapter 11 is an attempt to explore further the concerns of students about their learning and the extent to which these concerns are being met within the context of a range of teaching strategies which are within their present sphere of experience. More specifically it aims to explore how students perceived IL in relation to other teaching methods with respect to enhancing their learning. The evidence in Chapter 10 appears to suggest that generally lecturers may not be sufficiently sensitive to the concerns of students about their learning.

A teaching and learning situation is a joint effort between the teacher and the student for the purpose of promoting effective student learning. This joint effort therefore assumes an interaction between them which is theoretically based on a mutual or shared understanding of their respective capabilities and potentialities, and an understanding of the contexts within which they operate. One such context within which they operate is the instructional mode. Do lecturers and students construe a range of common teaching methods in the same way in terms of their effect on student learning? The purpose of Chapter 11 is to find some answers to this question. In particular, it addresses itself to finding out whether lecturers are sensitive to the learning concerns of their students. Sensitivity to the students' concerns, however, are by no means an indication that provision has been made to meet these needs and concerns.
Understandably many factors within the institution itself and the system as a whole as Chapter 10 would suggest, operate to make the work of catering for students' needs difficult. Nonetheless, it would be pertinent to explore lecturers' and students' perceptions of the students' learning experiences from a range of teaching techniques. Greater awareness of students' thinking about their learning and the effects of teaching on them, can help promote a more effective joint venture between students and teachers as Pope (1982) points out:

"What is relevant to the person is of importance and for education to be a joint venture between the teacher and learner it would be beneficial if each had some awareness of the other's personal constructs."

11.2 PROCEDURE FOR DATA COLLECTION AND ANALYSIS

The method which was used to elicit the lecturers' and students' construing of a range of teaching methods is the repertory grid technique which evolved from Kelly's 'Personal Construct Theory' (1955). The philosophical basis of the theory and the rationale for employing the repertory grid technique was discussed in Chapter 7. For a detailed description of the practical considerations in the use of repertory grid technique (RGT) and methods of analysis, the reader is referred to Pope and Keen's book (1981).

11.2.1 Subjects

In my study-twenty five Group 05 students from STTI and eight lecturers from the same Institution form the subjects of RGT. The lecturers were Education lecturers who taught some parts of the Education course to these students.

To begin with I arranged to meet my subjects at a time convenient to them to explain simply Kelly's ideas concerning Personal Construct Theory, and the procedures involved in the element and construct elicitation-process. As it was not possible for the lecturers and students to be assembled together at the same time, I arranged to meet the groups of students and lecturers at different times, convenient to them. At each meeting each of the subjects completed
a 'dummy grid': this was to give my subjects practice in the negotiation and elicitation process, using as elements a topic familiar to all eg Malaysian fruits. At both times I distributed blank grids (Appendix G) which my subjects were to use to complete the grid. At the same time, considerable discussion was devoted to identifying a set of elements (in this case a range of teaching methods) which were within the range of experience of every one of the students, and which represented teaching methods they could construe. The students came up with the following set of eight elements: lecture tutorial, group discussion, individualised learning, student presentation, assignment, micro teaching and educational visits. I spent some time with the students to discuss their conceptualisation of each of the teaching methods they had identified. They were unsure of the connotation of two of the methods. In the context of their normal learning, they had not been exposed to academic tutorials as such. In the study they were aware of or had had individual tutorials with me. I have described this in Chapter 9. Their normal tutorial constituted of fortnightly tutorials of the pastoral kind. In such circumstances I negotiated with them that when they thought of their constructs in relation to the tutorial, they were to focus their attention to the tutorial which had recently become a part of their common experience, ie the individual tutorial they had with me. As it turned out in the constructs later, some of the students still tended to view the pastoral-kind of tutorial that they were used to. This was perhaps due to the fact that not everyone of the twenty five students came up to me for individual help. In fact, only about 80% had personal contact with me. They either came voluntarily or I called them to discuss their assignments with me. Consequently, there was some discrepancy in the students' conceptualisations of the tutorial.

The other teaching method which raised some discussion was group discussion. Again, despite my reminding them that they could think of the group interaction tasks (GITs) they were introduced to in the study, some were still thinking in terms of the group discussions they had had informally with their friends, or in their fortnightly tutorials with their lecturers. I thought this slight
deviation in conceptual framework with respect to group discussion did not seriously alter the accepted common conceptualisation of group discussion which is basically interactive learning. In essence the students' informal discussion is similar to GIT, the latter only being more structured and formalised.

My first meeting with the lecturers did not take place till after I had met all the students. Like the students, the lecturers also completed a 'dummy grid'. Instead of asking the lecturers to identify the elements, I presented them with the elements which the students had identified. I also checked with the lecturers that these teaching methods were within their range of knowledge, or experience, but I was not sure if they conceptualised them in the same manner as the students did. Upon checking with them, I was able to establish that the lecturers' view of each teaching method was the same as the students. In respect of group discussion and tutorials, I negotiated with them that they were to interpret them as academic tutorials and GIT. They differed from the students by identifying two more teaching methods: practical teaching and GERKO (co-curricular activities). These were added to the list of elements in the lecturers' grid. However, when a FOCUSed mode grid for lecturers and students combined was constructed, these two elements were dropped because they had not formed part of the elements in the students' construct elicitation.

The following definitions of teaching methods represent the views of the lecturers and the students about these teaching methods. In so far as they are similar they can be used as common elements to elicit the lecturers and students' constructs on student learning from these teaching methods.

11.2.2 **Definition of Teaching Methods**

1. **Lecture**
   Entirely teacher prepared, material delivered by the lecturer, sometimes interrupted by short questions and answers and sometimes a short period of discussion was allowed at the end of the lecture.

2. **Assignments**
   These were topics given to the students based on the lecture.
3. **Group Discussions**
Situations in which the students had the opportunity to work on set tasks within smaller groups where the teacher acts as resource person. The essence of the group discussion is in its interaction. (Students later tended to think of group discussions with their lecturer as a fortnightly tutorial meeting or informal discussion with friends.)

4. **Micro Teaching**
This is where the students worked in small groups of four or five to prepare a lesson in front of a camera. However, only one of the five at each time had the opportunity of practice teaching.

5. **Individualised Learning**
Students work individually at their own pace within a specified time limit on prepared materials in which were incorporated activities, assignments and self-tests.

6. **Tutorials**
Individual tutorials as experimented with in the study, (but students tended to produce constructs related to pastoral tutorial held once a fortnight which may, incidentally, be related to helping students in their academic work).

7. **Educational Visits**
Occasions when excursions to places of educational interest were arranged either informally by clubs and societies or formally by the institution. Both students and lecturers indicated that these were very infrequent.

8. **Student Presentation**
An individual student prepared a topic to present to the class with or without participation from other students. The lecturer remained in the background.
11.2.3 Grid Elicitation

Having negotiated the common elements which the lecturers and students could construe, I elicited all the grids individually using a conversational approach and applying several checks throughout the period of construct elicitation as suggested by Pope and Keen (1981 p. 50). These conversations were tape recorded.

The constructs were elicited by offering the subjects a randomly derived list of triads in which each subject was presented with three of the elements in the grid form and asked to say in what way two of them were alike and, thereby, different from the third. The person was asked to give both the emergent pole, i.e., the way in which two of them were alike, and also the implicit or contrast pole, i.e., what made the single element distinct from the pair. This construct was then recorded in the grid form. Next, the subject was asked to order the elements on a construct scale of 1...5 and to record their allotted values in the grid form. Fig. 11.1 represents an illustration of a grid entered by one of the students with some snippets from the conversation that took place when this student elicited her constructs, and rated the elements on these constructs.

Some notes might be helpful to explain the process that this subject and I entered into in the grid elicitation process.

a) The elements which had earlier been negotiated were presented in the grid form as E1...E8.

b) Initially, I presented the student with elements E1, E2 and E3 and asked how two of these were alike and different from the third. She perceived E2 (assignment) and E3 (group discussion) to be alike in the sense that there was active student participation in them, whereas she perceived the lecture (E1) to be distinctly different from the former two methods because 'students may not participate at all' in lectures. The two opposing constructs were then recorded in the two construct columns provided.

c) She was then asked to study all the eight elements and, on the basis of these two opposing constructs, rate each of them on a scale of 1...5. When she had done that and
<table>
<thead>
<tr>
<th>Emergent Pole</th>
<th>E1</th>
<th>E2</th>
<th>E3</th>
<th>E4</th>
<th>E5</th>
<th>E6</th>
<th>E7</th>
<th>E8</th>
<th>Implicit Pole</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Students participate actively involved (E2,E3)</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>Students may not participate at all (E1)</td>
</tr>
<tr>
<td>2 Research work carried out by students (E2,E3)</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>Research work done by the lecturer (E1)</td>
</tr>
<tr>
<td>3 Students are more independent instead of relying on the lecturer (E2,E8)</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>Lecturer gives most of the details (E1)</td>
</tr>
</tbody>
</table>

7* (*This student had 7 constructs*)

Fig. 11.1 An Example Of A Completed Raw Grid - Student SF (Grid 1)
recorded her ratings, I checked with her whether she was happy with her constructs and her ratings. To help her clarify her own thinking, I encouraged her to talk about her construct and ratings. For example, she rated micro teaching (4), but I expected micro teaching to be rated nearer to the emergent pole where there was a lot of active student participation. I asked her why she had rated micro teaching (4) and she answered:

"Because in our class we are divided into groups normally groups of five. Not everyone gets a chance to participate... the same person goes out and practice teaches."

I was also curious why educational visits had only a rating of (5) i.e. nearest to construct at the implicit pole, to which she explained:

"So far we only visited Art Gallery. Even though we might go... on educational visits I don't think we really learn much, for instance we go to Art Gallery we don't learn much. We just go there to see things and after that we just forget about everything. We never come back and follow up that's why I feel there is no participation at all.

I What is your idea of active participation? What do you expect to happen in participation?

S ...should really participate especially in class, they should stand up, voice their opinion, ask questions and it shows whether they really understand about the subject... there's really complete participation and also given work to do based on the particular topic..."

She went on to explain why she rated the lecture (5):

"Like lecture we just sit down. Although we are in the class we are participating to be in the class yet we are not really practically getting ourselves involved."

A similar process more or less continued throughout the grid elicitation session, where each of my subjects offered a construct, sometimes a couple of constructs at a time, with myself asking for
clarification to ensure that the subjects were definite and happy about their constructs and ratings. The use of a conversational approach to grid elicitation, though highly enriching, consumed a lot of time and was exhausting for both the subject completing the grid and for me. However, time consuming though it was, this is, I think, the best way to elicit personally valid constructs and ratings. The subject has, as far as he or she has been able, clarified the meaning of the statements for the researcher. There were occasions when some subjects after conversing with me changed their mind about their constructs and ratings. There were, however, very few of these and I endeavoured to ensure that I was in no way responsible for that change in mind.

Several of my subjects were not too conversant in the English language. They were, of course, encouraged to speak freely in the Malay language. Under such circumstances, I subsequently helped these students to articulate their constructs in English and only when they were happy that the constructs in English represented what they intended in the Malay language, would I ask them to write their constructs down. Out of the twenty five grids, seven were of such grids.

11.2.4 Analysis of Grids using FOCUS

When all the grids - lecturers' and students' - had been elicited, they were analysed using the FOCUS and SOCIOGRIDS computer programs, Shaw (1981). Each grid was analysed using a two-way cluster analysis to record systematically the rows of constructs and columns of elements to produce a FOCUSed grid showing the least variation between adjacent constructs and adjacent elements. The relationships between clusterings are represented in the form of a tree diagram - Fig. 11.2 (p.11.11)

To extend the description of the methodological approach further in terms of the analysis, the raw grid example in Fig. 11.1 (p.11.7) which has been analysed using the FOCUS program is presented here. The results from this single FOCUSed grid is also briefly discussed to show how I analysed the FOCUSed grid.
The relationship of student SF1's constructs and elements is highlighted in the form of a tree diagram in Fig. 11.2 showing clusterings of elements and constructs, e.g., in the tree for elements (a) elements 5 and 2 (i.e., IL and assignments) are a closely related pair having almost identical ratings on all constructs. This is to say that IL and assignments were seen to be similar and highly related on each of her constructs.

Although these two teaching methods were perceived to have positive effects in terms of encouraging self-reliance (C3), participative learning (C1, C2), providing assessment (C7), and satisfaction (C4), they were seen to fall short because they did not provide the student with the opportunity to interact with her peer, nor give her the opportunity to face the class to present her work. This is demonstrated by her rating of 1 to a construct which stipulated 'No interaction between students and lecturers' (C5).

Similarly, from the construct tree (b), the student seemed concerned that a teaching-learning situation should enable her to feel that she had been self-reliant in her work, had been assessed, and that she could derive satisfaction from this. This concern is made apparent by the close relationship between constructs 3, 4, and 7. Construct 5 (her concern for interacting with other students and lecturers) was also closely related to these constructs, and together they form a closely related clustering. Some other interesting outcomes of this student's FOCUSed grid (e.g., her rating for element 4 on construct 1 and element 7 on construct 1) had already been discussed on p. 11.8. What I have reproduced here is an illustration of the raw grid and FOCUSed grid of only one student.

Besides being interested in the manner the individuals construed the range of teaching methods, I was also interested to explore the similarity and differences in construing between the male and female students, and between students and lecturers. For this purpose, the raw grids were analysed using the SOCIOGRIDS Computer Program Shaw (1981). Three separate SOCIOGRIDS were done: one for male students, one for female students, and one for lecturers. These SOCIOGRIDS were then FOCUSed to produce FOCUSed mode grids which show the extent of shared construing among individuals within the groups.
No interaction between students

A lecturer assessment at end of lesson to test understanding
Give feeling of achievement after completing own work
Students more independent instead of relying on lecturer
Research work by students
Students participate, active involvement
No opportunity to speak to class

There is interaction
No assignment...
No sense of achievement
Lecturer gives details
Done by lecturer
Students may not participate
Opportunity given

Fig. 11.2 A FOCUSed Grid Of Student SF 1
These mode grids are then compared and analysed for any visible similarity and differences in the construing between the groups. This forms the analysis and discussion of section 11.3 below.

At another level, the original raw grids of members, six each from the three male, female and lecturer groups, were selected and analysed as one sociogrid in order to allow a comparison and a discussion of the relative similarity and differences of the construing of individuals within the group. Section 11.6 p.11.23 is devoted to the description of the construction of teaching methods by selected individuals within this one sociogrid.

11.2.5 Socionets

The SOCIOGRIDS program also produces a table showing the sequence of relationships between pairs of individual grids. This table, Table 11.1, helps one to draw 'socionets' which are useful to identify subgroups where the most commonality of construing occurs. This set of socionets also exposes those members of the group who have most in common and those with strongly individualistic viewpoints. Socionets are illustrated in Fig. 11.6(a) to (k) on p. 11.25

11.3 A COMPARISON OF STUDENTS' AND LECTURERS' CONSTRUCTS OF STUDENT LEARNING

Figs. 11.3 and 11.4 represent the FOCUSed mode grids for male and for female students. In certain respects these two groups of students appear to share similar construct systems which I summarise below. Both demonstrated a concern for a type of learning:

1. in which they played a more important role in the sense of being self-reliant and are more actively involved.

2. which can promote discussion and hence help their understanding;

3. where the lecturer is at hand to help them.

In certain other respects some male students demonstrated dissimilar construct systems than their female counterparts.
Table 11.1  Rank Ordering Of Similarity Between Pairs Of Individuals
the clustering of their constructs in Fig. 11.3 at nodes 15, 17 and 19, male students demonstrated a main concern for learning in an interactive learning situation where 'discussion' and 'sharing of ideas can take place'. This inclination to learn in groups is further demonstrated by the cluster of constructs at mode 21 where the teaching and learning situation was perceived to be 'merrier'. The female students appear to demonstrate a greater concern for the effect of the respective teaching modes on their study methods and affective needs. Hence the clustering of constructs at nodes 16, 17, 19, 22 and 24 (Fig. 11.4). Their significant constructs related to:

- homework to consolidate ideas (C2)
- self-effort at understanding (C1)
- inculcation of discipline initiative and diligence (C4)
- feeling of achievement after work completed (C3)
- actively involved in a learning situation which is not forced (C7 & C12)

A construct which did not appear in the male students' construct tree was the aspect of assessment. The female students, however, perceived the assessment variable as very closely related to the lecturer role (C8, C15, Fig. 11.4) as the expert who could explain things to them. This also came up in Chapter 8, eg p. 8:56. The indication I would suggest is that female students tended to be more anxious about their learning ability and needed frequent feedback from their lecturers, or be given the opportunity to check that what they had learned independently met with the requirements and approval of their lecturer. This provided them with a sense of confidence from lecturers. This finding conforms to the views of some lecturers in Chapter 10 p.10:36 that students needed the lectures to give them confidence to help draw together for them thoughts and ideas that they had learned.

In the construct tree of the lecturers, Fig. 11.5, two themes appear to be uppermost in the minds of the lecturers, that of interaction between lecturers and students and between students and students, shown by the clustering at nodes 15, 16 and 22. These are closely related to a construct which a lecturer labelled as satisfying affective domains. Upon checking on the transcripts of
Presentation by students themselves
Students play important role in studying, writing, thinking
Students play important part
Student does not work by himself alone
Students prepare & present better learning
Teaching and learning more exciting
Students more active in thinking
Interaction between lecturer & student among students
Group gathers to discuss
Students share ideas & knowledge
Discussion present makes lecturing easier
Helps better understanding of information received
Makes students work hard
Better understanding

G6 C4 Students only hear facts
G1 C5 Lecturers play important role in presenting facts, solving problems
G10 C1 Lecturer plays major part
G3 C4 Lecturer helps student
G2 C2 Lecturer prepares & presents
G10 C2 Teaching & learning more boring
G10 C4 Receive what is given but not thinking
G5 C1 Less interaction
G3 C1 Group gathers but no discussion
G1 C2 More oral discussion
G1 C1 No discussion. Lecturing harder for the individual
G8 C3 Not help much in better understanding
G8 C5 Makes students lazy
G4 C2 Less understanding

TUTORIAL
GROUP DISCUSSION
ASSIGNMENT
EDUCATIONAL VISIT
MICRO TEACHING
STUDENT PRESENTATION
INDIVIDUALIZED LEARNING
LECTURES

Fig. 11.3 A FOCUSsed Mode Grid of Male Students
No lecturer to explain
Assessment at end of lesson
Students work at their own pace
Students actively involved
Students independent, not rely on lecturer
Students do own work, little help from lecturer
Students play major role
Students play active role
Gives feeling of achievement after doing own piece of work
Homework given to consolidate ideas
Students make effort to understand
Encourages more discipline, initiative & diligence
Learner learns by himself, is not forced
Students do not easily forget because they do activities
There is discussion

Fig. 11.4 A FOCUSed Mode Grid Of Female Students
Fig. 11.5 A FOCUSed Mode Grid Of Lecturers
the relevant grid, satisfying affective domains to the lecturer concerned, meant and I quote:

"affective in terms of students themselves getting the opportunity to evaluate themselves in the context of their friends eg in micro teaching... because there is immediate feedback the students might feel a sense of achievement, may develop positive attitude...achievement by being able to relate with other students...how to accept criticism after micro teaching."

Elsewhere in their construct tree at nodes 17 and 18, the lecturers were again relating assessment closely to what students actually do in the teaching and learning situation in terms of students actively participating in it. However, assessment here related to assessing students' capabilities and the lecturer concerned clarified that 'capabilities is what students are capable of doing not only understanding...understanding as well.' The preoccupation with assessment in relation to students' active participation and interaction in the classroom, surfaces again in another clustering of constructs at nodes 20 and 21.

Constructs 9, 5, and 12 are near to each other suggesting that the lecturers are aware of the effect of certain methods of teaching on student learning in terms of catering for individual differences (C9), promoting self-learning (C12), and maximum student participation (C5), but these constructs featured lower in the lecturers' construct tree.

It would appear from the foregoing analysis, that the lecturers' construct systems differ to some extent from those of the students. Although female students and lecturers shared similar construing in terms of seeing assessment possibilities in the range of teaching techniques, I believe that the nature of the assessment intended differed within the different frame of reference of the lecturers and students. The kind of assessment that the students may be alluding to is the more overarching type of assessment that reinforces their learning as they progress linearly in the process of their learning, whether they are in class or outside working on their own. They need to always come back to check with their
lecturers for confidence and sustained interest. The assessment alluded to by the lecturers appears to be more confined to classroom activities eg in micro teaching, in GERKO, etc.

I also perceived a lack of commonality in construing between the lecturers, male students and the female students. The concern of the female students was in particular study methods which featured very prominently in their construct systems. This concern was not shared to the same extent by the lecturers, nor by male students. Although I find the lecturers demonstrated an awareness of it, this, however, featured as of secondary importance in the construct tree of the lecturers. Clearly, the students' - male and female - construct systems pertaining to learning attributes such as self-reliance, working by themselves with a little of the lecturer's help, playing a more important role did not appear as prominent constructs in the lecturers' construct systems.

11.4 A COMPARISON OF STUDENTS' AND LECTURERS' CONSTRUCTS OF TEACHING METHODS

Looking at the FOCUSed mode grids of the three groups of subjects, certain clusterings of teaching methods in terms of their main constructs may be observed:

a) The teaching methods which were viewed by male students as similar in terms of their relationships with their construct systems were student presentation, micro teaching, educational visits and assignments, all of which were perceived to entail learning in an interactive situation which at least provided opportunity for discussion.

b) For the female students the teaching methods that form a cluster were individualised learning, assignments, group discussion and micro teaching, all of which were generally associated with their own involvement in their learning.

c) The lecturers' element tree shows two groups of clusterings. The main clustering shows close relationships among practical teaching, micro teaching, group discussion and GERKO where interaction can take place and lecturers can obtain a feedback on students' capabilities and performance.
Another set of elements cluster around tutorials, individualised learning, assignments and student presentation which could be interpreted as indicating the lecturers' awareness of the importance of student participation in their own learning.

11.5 IL IN RELATION TO OTHER TEACHING METHODS

Looking at the element trees of the students and the lecturers, it can be seen that the female students and the lecturers have similar perceptions of IL in relation to other teaching methods. Both the lecturers and the female students regarded IL as an important teaching method but not as important as micro teaching. It may be perceived from their construct trees, however, that the lecturers rated micro teaching more highly than the students in terms of student involvement and active participation in their own learning and of assessment. The female students, however, rated the effectiveness of micro teaching more moderately. A reason for the moderate rating of the current practice of micro teaching had already been discussed on p. 11:8.

Both groups perceived IL to be similar to assignment in terms of catering for student participation in their own learning, but as would be seen on p. 11.11 the importance of each was seen in the light of different constructs deemed relevant for the lecturers and students. Hence the lecturers were found to rate IL moderately in terms of their main constructs - assessment and interactive learning. In the case of female students, on the other hand, whose constructs related more to effective study methods and satisfying affective needs, such as self-satisfaction, IL was rated high on these but low on lecturer explanation.

The perception of male students to IL was markedly different. For them IL enters on its own and only joins the element tree at node 13 (Fig. 11.3 p. 11,15). This indicates that IL was perceived to be different from other teaching methods. In terms of their construct, the male students rated IL only moderately for promoting interactive learning the latter of which constitute their main construct.
However, they rated IL high on constructs which suggest student involvement (C14, C8, C5, C9 in construct tree Fig. 11.3 p. 11:15 and better understanding' (C13).

Although male students perceived assignments as more important than IL, they considered it not so valuable for promoting understanding and only moderately useful for interactive learning. The perception that assignments were more attractive than IL, was possibly affected by the fact that the students were either given group assignments or when given assignments individually, they tended to apportion the work as one student suggests:

"Lecturer will give certain points on how to tackle topic. Among us there is still some discussion and share the work."

It would appear that assignment forms an important teaching method in STTI, although it was perceived by lecturers as not a very effective teaching method as the following quotes tend to suggest. The lecturers did not find assignments a really useful learning tool, but more a necessary form of assessing students and to ensure that students at least read the lectures:

L: "Scope and content limited. Little initiative to find more than what is presented. What comes back tends to duplicate lectures. Books are in English. Command of English is poor..."

I: Why are assignments perpetuated if lecturers feel they are not effective?

L: "...way to get feedback...has to do with the system of course evaluation. What else can lecturers do? There seems to be no other way. Also the reason is that it is one way to ensure that they read the lectures."

The above illustrates a situation in which assignments were given to ensure that students at least read the lectures. Two other quotations further illustrate this:

L: "At least it gives them an opportunity to do some reference work because our students if we don't give them any written work to do there is a tendency for them to completely ignore lecture notes. They don't read. Assignments are related to their lectures."
"Because I find some of the students they just produce whatever they get from the reference books or sometimes even the lecture notes. Sometimes I really doubt whether they really understand what they write."

Male students perceived assignments as entailing group activity where they would get together in smaller groups and apportion the references and writing work. The female students tended to see assignments more for academic reasons. They perceived assignments as providing them with scope for extensive research and learning in depth. As one student said:

"An assignment is given to us and we have to do the research on our own. We go to the library after getting the info. We kind of feel achievement for us that we’ve really done our work...After an assignment we have a better picture of the subject because we really work on it."

In all three grids the lecture enters the element trees on its own at a low level of similarity indicating that the lecture was perceived to be distinctly different from the other teaching methods. When compared to IL, the lecture was perceived by the lecturers and by both male and female students, as having little value for student learning. This is demonstrated by the low ratings of the lecture on the constructs. For example, the lecturers perceived the lecture to be more lecturer-centred with less student involvement. They also rated it low on assessment and interactive learning. Similarly, the female students rated the lecture very low on all their constructs, but perceived that in the lecture the lecturer was able to explain. The male students also perceived the lecture as a teaching situation in which the lecturer plays a major part.

In respect of other teaching methods to which IL has not as yet been compared such as group discussion, tutorials and student presentation, IL was perceived as more useful and rated more favourably by lecturers and female students, but not so by male students. Male students regarded IL as more useful than the lecture, but was less useful than other teaching methods.

The question remains as to why the male students differed markedly from their female counterparts and from their lecturers.
What is the extent of the lack of commonality that has been found to exist among students and lecturers? So far my analysis of the grids have focused on general findings about groups and not individuals. For greater insight into the findings it would be useful to look at the personal perspectives of some of the individuals. This can be done by examining the socionets (explained in 11.6 below) and personal FOCUSed grids of some lecturers and students.

11.6 PERSONAL PERSPECTIVES OF SOME LECTURERS AND STUDENTS

Table 11.1 p. 11.13 represents the linking system of eighteen subjects - six lecturers, six female students and six male students, (described on p.11.12). Numbers 1 to 6 consisted of male students, 7 to 12 of female students and 13 to 18 of lecturers.

Fig. 11.6 (a) to (h) and (j) to (k) overleaf represent socionet diagrams which were derived from the linking systems of Table 11.1. Some interesting features may be observed.

1. There were several subgroups. Students 5 and 6 constituted a male subgroup that linked very early in the linking system. Students 8 and 11 form a female subgroup and lecturers 17 and 18 a lecturers' subgroup. This indicates a shared understanding between members of these subgroups which evolved quite early in the linking system.

2. More shared understanding was evident between female students and two of the lecturers (L17 and L18) by the early linking of female students 7 to 11 at link 7. By link 11 all female students (S7 to S12) had linked with lecturers 17 and 18.

3. Male student 4 joined lecturer 18 quite early at link 6. At links 15 and 16 male student 4 was joined by male students 5 and 6 and, thereby, with a larger group. Student 2 joined with lecturer 13 only at link 18, and student 3 with fellow male student 6 at link 32, which was quite low. Male student 1
remained out of the linking system until very low at link 60 where he linked with student 6, Fig. 11.6(h). It is evident from the linking system of the boys that they were a very uncohesive group.

4. Four of the six lecturers had formed a larger group at link 13. However, lecturers 14 and 16 joined the linking systems only at link 51 and 98 respectively. These two lecturers were very different from other lecturers.

By link 98 certain patterns in the linking system have evolved: Lecturers 15 and 17 appear to have wide construct systems (as evidenced by the direction of arrows ie away from them towards other members), indicating that other constructs are also subsumed within their own constructs. Lecturers 13 and 18 had most of the arrows pointing to them. It may be interpreted that they had narrower construct systems and may not, necessarily, empathise with the constructs that they do not share with other members in the group.

Lecturers 14 and 16 were relative isolates which suggest that they tended to hold a different view about teaching methods and their impact on student learning from that held by their colleagues and students.

Female students appear to be very cohesive but not so the boys. However, in Fig. 11.6(k), it may be noted that apart from female student 9, most of the other female students had narrower construct systems.

Male students on the whole, except for student 4 had narrower construct systems and as was indicated earlier, the male students appeared to lack cohesion. Students 5 and 6 had very narrow constructs, while student 1 was practically an isolate and when he made a link it was made with student 6.
Fig. 11.6 (a) to (h) and (j) to (k): SOCIONETS
From the evidence gathered, the earlier finding may be confirmed that there was a lack of commonality in the thinking of lecturers and students about particular teaching methods and their impact on student learning. The perception of male students rather than female students, was more at variant with the perceptions of the lecturers and even within the construct systems of the lecturers, male students and female students, there was apparent variation in the way they perceived the same elements. A more intensive analysis of some of the FOCUSed grids of individual cases can provide some explanations for this lack of commonality.

11.7 ANALYSIS OF THE FOCUSED GRIDS OF SELECTED CASES

It is interesting to note that the subgroups which were described in 11.6(1) on p.11:23 also represents those individuals who in Chapter 8 were identified as LOL and SOL students, and in Chapter 10 were identified as lecturers who held mixed feelings about IL. Students 5 and 6 correspond to LOL students - students 19 and 5 (two cases discussed on pp.8:74 and p. 8:55 while students 8 and 11 correspond to SOL students 10 and 3 in Chapter 8 (discussed on pp.8:64, p.8:59). Male student 1 was student 21 in Chapter 8, who was not completely averse to IL but neither was he committed to it. In Chapter 8 he was perceived to be inclined to be a LOL student in a lecture situation, but showed a tendency towards adopting a SOL in IL situation, but did not because of a strong social motivation (Chapter 8 p. 8:58)

11.7.1 FOCUSed Grids of LOL Students

Fig. 11.7 and Fig. 11.8 are the FOCUSed grids of students 5 and 6. Looking at their element trees, it may be observed that they viewed the teaching modes in the same way seeing micro teaching and educational visits as being closely related and important for their learning. Similarly, they perceived the tutorial as being similar to group discussion. IL was perceived by both students as only moderately useful and the lecture as least important. In terms of their constructs, student 5 considered help from the lecturer as important as well as materials that lecturers can supply (Fig. 11.7).
Group gathers to discuss
More student involvement
Lecturer helps students
Lecturer gives all materials
More interesting

Group gather but no discussion
Less student involvement
Students work by themselves
No materials supplied by lecturer
Less interesting

LECTURE
INDIVIDUALISED LEARNING
ASSIGNMENT
TUTORIAL
GROUP DISCUSSION
EDUCATIONAL VISIT
MICRO TEACHING
STUDENT PRESENTATION

Fig. 11.7 A FOCUSed Grid Of Student 5
(Student 6 in Chapter 8)
Students share ideas/knowledge 2
Discussion makes learning easier
More oral discussion
Students learn through experience
Students play important role: writing, thinking

Less chance...
No discussion; learning difficult
More written works adds knowledge
Students learned less...
Lecturer plays important role present facts, solve problems

Fig. 11.6 A FOCUSed Grid Of Student 6
(Student 19 in Chapter 8)
He was also concerned about student involvement although this construct only enters the construct tree on its own at node 7.

In Chapter 8, student 5 was found to favour the lecture because of the help that the lecturer could provide by way of explanation and materials. This was again evident in the student's grid in which the lecture was rated very high in terms of lecturer's help and materials provided. IL was seen to involve students in their learning but did not involve students in any discussion. It was also rated moderately in terms of help and materials given by lecturers and in terms of arousing interest.

Student 6 had constructs which were related more to interaction learning as reflected by the closeness of C1 and C2 in Fig. 11.8. These in turn were related to two other closely linked constructs in which the main concern related to oral discussion and learning through experience C4 and C3 (Fig. 11.8). These concerns were expressed in the interviews mentioned in Chapter 8. In his grid group discussion and the tutorials were rated more highly than either the lecture or IL on these constructs. When IL was compared with the lecture, IL was rated quite low in terms of interactive learning. Similarly, the lecture was thought to be not so effective for interaction and learning by discussion but it was rated more highly than IL.

11.7.2 FOCUSed Grids of SOL Students

Students 8 and 11 construed the elements in similar ways. From their grids in Fig. 11.9 and Fig. 11.10, the teaching modes which were perceived to be similar and useful for promoting student learning clustered around micro teaching, assignments, individualised learning and group discussion. Their main constructs appear to relate to the cognitive aspects of learning. Student 8’s constructs clustered around learning aspects related to understanding (C1 and C2, Fig. 11.9) and also to interaction with the lecturer (C4). The teaching modes which she viewed as most useful for promoting these were assignments, IL and micro teaching. IL was rated moderately high on these constructs and the lecture moderately low. Student 8 represents a SOL student who was highly motivated in the lecture and in IL but tended to use a LOL approach in the lecture situation. The educational
Fig. 11.9  A FOCUSed Grid Of Student B  
(Student 10 in Chapter 8)
Homework to consolidate ideas
Students do not forget because they do activities.
Lecturers can diagnose student's difficulties & weaknesses.
Students involved individually.

Homework is not given.
Students do not do activities.
Everything given by lecturers.
Lecturer could not...
Students involved in a group.

Fig. 11.10 A FOCUSEd Grid Of Student 11
(Student 3 in Chapter 8)
circumstances surrounding student 8 has been discussed in Chapter 8 p. 8: 64 (Student 8 in Chapter 8).

Student 11, similarly, had constructs related to the cognitive aspects of learning such as consolidation and retention of ideas and to relationships with lecturers in terms of lecturer feedback, as well as learner involvement in their learning. Again the teaching modes which were rated high on these constructs were micro teaching, group discussion, assignments and IL. Unlike student 8, student 11 rated IL very high on all these constructs. In Chapter 8 it was found that student 11 was very positive towards IL. On the contrary, the lecture was perceived or rated very low on all the constructs.

11.7.3 FOCUSed Grids of Lecturers

Like the SOL students, lecturers 17 and 18 saw close relationships between assignments and IL which appear as highly related pairs of elements in their grids, Fig. 11.11 and Fig. 11.12. Other teaching methods which were seen to have close relationships were student presentation, group discussion, micro teaching, tutorial and practical teaching. These appear in a cluster in the element trees of lecturers 17 and 18. However, unlike the SOL students, the lecturers perceived the lecture as very different from other teaching modes. The lecture appears on its own in the element tree of the lecturers and only becomes part of the general cluster at a very low level of relationships. Nonetheless, like the SOL students, they rated the lecture very low on all their constructs.

Lecturer 18 had main constructs which were akin to student 11's main constructs. In their construct trees in Fig. 11.12 and Fig. 11.10, their main constructs related to satisfying affective domain needs and reinforcement which the lecturer explained was a learning situation that provides for students' need for feedback from the lecturer. This also constituted a primary concern of student 11 (C3, Fig. 11.10). The other related constructs were associated with catering for individual differences (C5, Fig. 11.12; C1, Fig. 11.10) and encouraging self-learning (C4, Fig. 11.12; C2, Fig. 11.10). For feedback and reinforcement micro teaching was perceived to be an effective teaching method in the lecturer's grid and for promoting individual differences
Fig. 11.11 A FOCUSed Grid Of Lecturer 17

Student-teacher participation: 2 5 5 4 4 4 3 1 1 3 3 No interaction, no evaluation or guidance
Immediate feedback: 7 5 5 5 2 3 2 1 1 3 3 Feedback delayed
Verbal contribution by students: 3 5 5 5 1 1 2 2 2 4 3 Non-verbal, the shy would prefer to contribute in writing
Group effort: 8 5 4 4 4 1 1 2 3 2 2 No group effort
Activity oriented: 5 5 3 4 2 3 1 3 2 1 2 Non activity oriented
Maximum participation: 1 5 1 1 1 1 2 2 3 3 2 No student participation at all
Self-help & self-learning: 6 5 1 1 3 3 3 4 3 3 4 No self-help & self-learning
Reading, research & written contribution by students: 4 5 3 1 1 1 2 3 3 3 5 No written contribution

EDUCATIONAL VISIT
PRACTICAL TEACHING
TUTORIAL
MICRO TEACHING
GROUP DISCUSSION
STUDENT PRESENTATION
ASSIGNMENT
INDIVIDUALISED LEARNING
LECTURE
Fig. 11.12  A FOCUSed Grid Of Lecturer 18
and self-learning IL was more highly rated. In both the lecturers' grids, the lecture was also rated very low on all the constructs.

Lecturers 14 and 16 were very different. In Chapter 10 they were identified as lecturers G and J who had apprehensions about the capability of Malaysian students to learn independently, and saw IL as not immediately viable in the Malaysian context. They represented the more conservative or cautious outlook about implementing innovative teaching.

Lecturer 14 perceived that practical teaching, micro teaching and student presentation were more closely related, followed by group discussion, assignments and GERKO. IL was perceived to be related to educational visits. The lecture and tutorial enter the element tree on their own at a low level of relationship (Fig. 11.13). In respect of his constructs, IL was rated low because it was deemed to lack supervision and thereby resulting in students' loss of confidence (C4, Fig. 11.13). Similarly, he perceived IL and the lecture to be restrictive ie confined to the educational syllabus and ineffective for evaluating students' achievements (C1, C3, Fig. 11.13).

Lecturer 16 did not form a link with the other lecturers and students until link 98 in the linking system, Table 11.1 p.11.13 thus showing a marked difference in his thinking. Looking at his element and construct trees, Fig. 11.14, certain inferences can be made about his ordering of the elements in respect of his constructs. Primarily, he was concerned with contact that students should have with the lecturer where doubts and opinions could be voiced and solved orally, (C1, Fig. 11.14). IL and assignment compared to other teaching modes, were seen to be least useful for meeting this need and rated very low on this construct. He also perceived that IL tended to limit the scope of student learning to the printed material (C3). In addition to this IL was perceived to be relatively ineffective for getting immediate feedback on students' understanding. On the contrary, other methods which form the close cluster already identified, was rated very high on this construct.

Clearly, lecturer 16 did not share the views of many of his colleagues and students with respect to the scope of IL. In fact,
FIG. 11.13 A FOCUSed Grid of Lecturer 14
Fig. 11.14  A FOCUSed Grid Of Lecturer 16
contrary to the perceptions of most other members in the group, he perceived the lecture as more suitable for providing greater scope in student learning and personal contact, although he had rated the lecture low on student active participation.

11.8 SUMMARY AND DISCUSSION

The aim of the chapter is to investigate if there was commonality between the lecturers and the students in their perception of the effect of IL, and a range of other teaching methods, on student learning. Specifically, the relationship between IL and a range of other teaching modes was examined. The findings are applicable only to the subjects and their lecturers in my case study and, therefore, may not reflect the perception of other lecturers and other students in different situations. Nonetheless, as an exploration about an instance, it has some demonstrative value in highlighting possible effects on student learning of lecturers' sensitivity towards students' concern about their learning.

The analysis of the socionets and events in the linking system has shown a lack of commonality in the perception of the lecturers and the students to a range of teaching modes and their impact on student learning. In particular, they were at variant in respect of IL and its scope for student learning. Three main findings are identified:

1. At least four subgroups were evident in the linking system. The girls were a very cohesive group sharing similar views with a second group of four lecturers. The boys were not so cohesive. One, in fact, remained in the outer limits of the system joining with a fellow male student only at a very low level of relationship. A fourth subgroup was made up of two lecturers whose views were very different from that of the other members in the group.

2. These subgroups correspond to the same subgroups discussed in Chapter 8. LOL and SOL students were inclined to form separate groups. Similarly, there were two groups of
lecturers who had different orientations. Two of the lecturers were found to be very different from the rest. These were the same lecturers who in Chapter 10 perceived that IL was not immediately viable in the Malaysian context.

3. A greater commonality in thinking is noted between the majority of the lecturers and the female students. One reason is the cohesive characteristics of the female group which made early links with four of the lecturers.

Despite the fact that there was lack of commonality, certain general inferences can be drawn which are summarised and discussed below:

1. Different groups of subjects appear to conceive different aspects of student learning as being more important, although they were all agreed that student learning must involve student participation in their own learning. For the male students learning in an interactive situation was of paramount importance; for the female students, concerns over study methods and satisfying affective needs took first consideration; while the lecturers conceived of student learning as immediate feedback and demonstrable evidence of achievement within the classroom setting.

2. The concern over assessment which the lecturers said was imposed by course requirements had led to the use of assignments which the students and the lecturers found ineffective. The lecturers suggested that the purpose of assignments was for grading as well as to ensure that the students at least read their lecture notes. The onus was on the students to prepare a good piece of work, yet they were able to get by with an assignment which regurgitated the lecture notes. Perhaps the students did not perceive the lecturers as very demanding. This has led to a quality of learning which the students themselves found wanting. Both items 1 and 2 point to the need for
greater sensitivity to student learning needs which may not be immediately apparent or which may not be the same for all students.

3. The lecture was generally perceived to be least important and valuable for promoting student learning by both the students and the lecturers. This raises the question of the place of the lecture in the teaching and learning milieu.

4. Finally, individualised learning was construed as very important and valuable next to micro teaching and practical teaching by the majority of the lecturers and the female students. The male students did not share similar construing because they conceived of IL as being non-interactive. This finding has implications for a teaching situation in which interactive learning can be provided.

5. Lastly, a very pertinent and interesting observation is that the outcome in this chapter confirms my findings in Chapter 8 and Chapter 10, which were mainly based on subjective qualitative accounts of student learning from interview transcripts. The findings in this chapter using a systematic statistical approach confirms the value of using a triangulation approach in research method in terms of increasing the plausibility and validity of the findings.
12.1 SUMMARY OF THESIS

Each chapter in the thesis has its own summaries. This chapter aims at synthesising the main findings to form a more comprehensive picture of the outcome of the study. The conclusions and implications will then follow. The study evolved from a concern about student learning in the traditional system in the Malaysian context which led to an exploration of the effect of IL and the lecture on student learning and all its ramifications. Specifically, it was inspired by the hypothesis that 'the suggestion that Malaysian students are used to spoonfeeding and cannot learn through IL is mistaken'. The whole exercise was to explore the truth or falsity of the myth, Malaysian Student Syndrome (MSS), by actually exposing students to IL. If the myth was found to be baseless, then other factors could account for the phenomena of Malaysian student learning.

The study, to be meaningful, had to tap the perspectives of both the potential users - learners and lecturers - in naturalistic conditions using a methodological stance that was both quantitative and qualitative. A study which was grounded in reality naturally allowed other parameters of learning to evolve. So while this study is essentially aimed at an investigation of IL, one cannot ignore the influence of other factors on the innovation. In fact, investigating IL in a realistic situation can lead to the identification of more meaningful perspectives. Consequently, the summary first describes
the other parameters operating within the teaching and learning milieu as they have evolved from the study, and then locates IL and subsequently, three other teaching components within the structure.

Chapters 8 to 11 reported the results of the study. The results are now drawn together and summarised in a representative model to show the dynamics operating within the teaching and learning context. Subsequently, building upon this model of student learning, two more models were generated:

1. A model showing the place of IL and the lecture within that model.
2. A hypothetical model to show the possible effect of innovative teaching using IL with other teaching components on student learning within the same context.

The models provide ways of re-examining and assessing holistically the traditional system of education in the Malaysian context, and within this system the possible improvements and changes which may take place as a result of implementing more 'responsive' teaching methods. The proposed models for improving teaching and learning do not, however, represent the panacea to all the educational shortcomings in teaching and learning in the Malaysian context.

The models derived from the empirical work of this study do not represent a complete picture of Malaysian student learning. I have not, for example, focused on the psychological factors such as students' personality nor on their knowledge and characteristics on entry into the institution which, Entwistle (1981) suggests, affect student learning and are important to consider.

12.2 DISCUSSION OF MODEL 1

Model 1

Fig. 12.1 has been built upon the findings which evolved in Chapters 8 to 11. The components of the model are numbered and are annotated in the light of these results.
Fig. 12.1  A General One-Way Model To Show Influences On Student Learning In the Malaysian Context.
1. **Education System**  In Chapter 10 the lecturers indicated several flaws in the education system that have led to particular orientations at the institutional level, at the teaching level, and at the learning level.

2. **Institutional Milieu** - ie whether the institution was seen to be rigid and demanding high academic performance, or flexible and adopting a laissez-faire atmosphere. Many instances were cited in Chapter 8, Part III that students attributed their learning to the laissez-faire climate of the college milieu. This was endorsed by some lecturers in Chapter 10.

3. **Lecturer Orientation**  The findings in Chapters 10 and 11 pointed to specific lecturer orientations which may have an effect on their teaching styles which, in turn, may affect student learning. In Chapter 10 it was found that students' reactions to IL were related to the manner in which the ILM were utilised. The lecturers who utilised the ILM systematically with a lot of student participation, had students who reacted positively towards the method of teaching. There was also evidence that the lecturers' orientation ie their conceptualisation of Malaysian students and of IL had affected their teaching styles. Thus a lecturer who perceived Malaysian students as capable of independent learning if properly directed, would be more inclined to move away from traditional teaching when the opportunity presented itself.

The indication in Chapter 11 was also that lecturers did not share the primary concerns of students about their learning. While some students conceived of the importance of being self-involved in their learning in the sense of developing good study methods and habits, the lecturers' constructs appear to focus more on the importance of assessment and feedback and interaction within the classroom setting.

So in the model, lecturer orientation may be a factor which influences the lecturers' teaching styles, and subsequently, student learning.
4. Teaching Methods suggests the range of teaching methods which may be adopted as a result of one or other factors discussed earlier. Depending on these, lecturers may use either the traditional lecture method with or without tutorial, or a more open responsive method of teaching, or both. I have described the lecture as 'restrictive' in terms of being lecturer centred, and suggested that innovative methods are 'open' in the sense of being responsive to the individual differences and concerns of students.

However, the evidence from Chapter 8 and also from Chapters 2 and 3, was that the lecture is the most predominant method used. Yet, in Chapter 11, there is strong indication that the lecturers and students perceived the lecture as the least important teaching method, and of least value in promoting student learning. Again there was evidence that the students did not perceive the value of particular teaching methods to the same extent as the lecturers. For example, the lecturers overrated the value of micro teaching in terms of student learning, while the students saw micro teaching as the most important teaching method, but felt that they did not gain maximum participation in it.

5,6. Student Learning Orientations and Learning Approaches. I have indicated that the lecturer's teaching method affected the way the students perceived the learning tasks. In reacting to the perceived learning tasks, the students adopted particular learning orientations which may either be self-oriented or lecturer-oriented. The evidence is very substantial in Chapter 8 that the students in IL may adopt a SOL approach, while the students learning in the traditional mode more often adopted a LOL approach. Methods of teaching appear to promote different learning orientations which, in turn, led to the application of different learning approaches. In Chapter 8, Part III, the evidence clearly suggests that learners who adopt SOL may adopt the 'deep approach' in learning, while LOL students invariably tended to use 'surface approach' in learning.
The learning orientation of the students results directly from the students' perceptions (6) of the demands of the tasks within that particular teaching situation. 

g. **Learner Orientation** Laurillard identifies learner orientation as academic (love for subject), vocational (wants a good career), and social (developing the personality). More than just a love for the subject, I find that students also demonstrated a desire for developing effective study methods (Chapter 11) which is intrinsic and related to academic orientation. In Chapter 8 it was contended that SOL students will adopt SOL in IL and that LOL students may also become SOL in an IL situation. However, there were LOL students who remained LOL whatever the method of instruction. Such students demonstrated a strong social orientation but a poor academic and vocational orientation. The social orientation that I refer to is what Laurillard described as a type of orientation that does not relate directly to the way students work, except in the sense that it often provides a reason for not working (Laurillard, 1978). In the Malaysian context the education system and the institutional milieu are also seen to affect learner orientations. This was evident in Chapter 8.

**8,9. New Study Methods and Habits** New learning orientations can lead to different study methods and habits which may or may not replace old acquired habits (9) which students (in Chapters 8 and 9) and lecturers (Chapters 10 and 11) suggest were the by-product of the system and institutional milieu.

**10,11. Personal Characteristics** and attributes of the lecturers and learners are factors over which one can have little control, but they may have an effect on student learning as well. eg. in Chapter 11 sex differences were found between the way students perceived the teaching methods and their effect on student learning.
12.3 MODEL 2: INDIVIDUALISED LEARNING AND THE LECTURE IN THE CONTEXT OF MODEL 1

The experimentation with IL took place in a teaching and learning climate which was depicted by Model 1. Chapter 8 described fully the way students learned from IL and the lecture. The results of the analysis all pointed to particular learning orientations and study methods as a result of adopting one teaching method or another.

In Model 2, Fig. 12.2, all factors remain the same except the teaching methods. Two teaching methods - the lecture and IL - were examined and their consequent effects shown in the model. The direct and immediate impact of any teaching on the students is that the students perceive the learning tasks and the teachers' expectations of them. In the case of IL both the materials and the lecturers have placed certain expectations on the students. The students react accordingly. This is shown by the perception line that leads the students in the lecture and IL situations to adopt particular study methods and learning approaches.

4a,5a. Student Learning in the Lecture There is much evidence in Chapter 8 to suggest that when students learn through the lecture, they tend to adopt a LOL approach using 'surface' learning. Even the students who were SOL learners were inclined to be LOL students. It is not certain whether the social or institutional milieu exerted more influence in this case. I would suggest from the evidence that in the case of the SOL students, the teaching method exerted a greater influence. In Model 2, Fig. 12.2(4a), the lecture presents a learning situation where the students were either LOL students or SOL students adopting a LOL approach. The evidence also indicated that the LOL students were inclined to use 'surface level' learning (5a).

4b,5b. Student Learning in IL In IL the SOL students and some LOL students were inclined to be more self-oriented in their learning using either a 'deep' or 'surface' level learning. The evidence in Chapter 8 suggests that the SOL students in IL would use 'deep level' processing, while the LOL students may use either 'deep level' or 'surface level' depending on their
Fig. 12.2 Model 2 To Show Effect Of The Lecture And IL On Student Learning
academic, vocational and social orientation. The students, learning through IL, perceived that they had to use a lot of their own effort to interact with the materials, and do activities, assignments, and meet specific deadlines.

Learning in this way leads to the development of new study methods such as more reflective reading, reading in depth and more active participation. It also helps students to cultivate new study habits such as working hard, working on time, as well as developing a self-reliance and responsibility for their own learning.

As a model of student learning, this model is by no means meant to be prescriptive. It is descriptive having as its main objective the location of IL and the lecture within a realistic structure and within the perspectives of the direct users of the innovation.

12.4 MODEL 3: A HYPOTHETICAL MODEL OF STUDENT LEARNING ARISING FROM IL WITH THREE OTHER TEACHING COMPONENTS

12.4.1 Introduction

Several considerations arising from the results have led me to develop Model 3, Fig. 12.3. It was also the result of experimentation which uses IL with three other teaching components: individual tutorial and group interaction tasks. The lecture as advanced organiser is incorporated into the model as the third teaching component.

(a) It was observed in Chapter 8 that the LOL students had poor academic and vocational orientation but relatively strong social orientation. This group of students were averse to IL.

(b) It was also found in Chapter 8 that there were LOL students in the lecture who remained LOL students in IL, and who expressed regret at missing the contact with the lecturer and peers. Chapter 11 clearly demonstrates the concerns of male students for learning in an interactive learning situation with lecturers and peers.
(c) The evidence in Chapter 10 also strongly suggests that IL on its own would not be acceptable to Malaysian students, at least at the initial stage. The lecturers perceived that IL can only be supplementary to the lecture.

(d) The results of experimentation of IL with individual tutorial and IL with group interaction tasks in Chapter 9, indicated that the students were more positively responsive to learning through IL which included group interaction. There was some indication that even LOL students were beginning to show signs of interest and see the value of learning through IL.

(e) In the final analysis, one must consider the importance of offsetting the indirect influences of other factors operating over a longer time scale (Model 1) by providing students with a teaching situation which can sustain their interest and motivate them to learn.

Fig. 12.3 (Model 3) summarises the teaching methods which differ from traditional teaching using IL as the basic teaching method and, not as the lecturers suggested, merely as supplementary or 'as an aid' to teaching. The lectures, nonetheless, would have an important function in providing students with advance organisers or be used to give students feedback that was seen as vital to boost their confidence (Chapter 10 and Chapter 11)

12.4.2 Discussion of Model 3

In Model 3 the variables affecting student learning remain unchanged (1, 2, 3, 9, 10 and 11), but the teaching methods (4) assume a mixture of teaching components in which IL is the basic form used for transmitting knowledge instead of the lecture.

The lecture may be used for providing advance organisers and for feedback. Students may interact with the ILM and this may then be followed by individual tutorials if necessary and/or by group interaction tasks which may serve as a further extension of the ILM. The latter can provide an opportunity for interactive learning and other extended activities such as a quiz or test.

The sequence and resulting format is represented in the model as (4). This model shows a situation in which a composite of
Fig. 12.3 A Hypothetical Model 3 To Show the Effect of Teaching Methods on Student Learning
different teaching methods is used, but I would suggest that this is illustrative of a 'responsive' style of teaching. Each of these teaching methods is expected to induce students to perceive their learning tasks (6) in particular ways which may influence them to adopt particular learning orientations and learning approaches (5). The contention is made that students may be inclined to adopt a SOL, but it is still not certain whether or not they will all use 'deep level' processing. Helping students to become self-oriented in their learning will, nonetheless, be a first step towards helping them move away from mere rote learning to more meaningful learning for understanding. The direct effect of the learning orientation and learning approach is the development of new study methods and habits (8) which, in the long term, may be able to replace old acquired habits (9) and even affect learner orientation (7).

12.5 CONCLUSIONS

Some conclusions are now drawn from the thesis.

12.5.1 Problems Of Teaching And Learning In A Malaysian Context

From the literature in Chapter 2 and the analysis of the results of this study, much dissatisfaction with student learning was detected. Malaysian students' weaknesses in learning have been attributed to a number of factors: the education system, the overloaded curriculum, the shortage of staff, time and space, and the lack of resource materials eg books in the national language, and even to the students themselves, who were perceived to be incapable of independent learning.

In the West, the problem of student learning has been identified to a certain extent as being linked to the mismatching of teaching methods and styles with student learning. From my interviews, this phenomenon did not appear to be significant. However, I feel that in Malaysia the same problem exists which is that traditional teaching styles had not met the learning needs of students was obvious. For example, the lecture remains the predominant method of teaching despite the fact that it had been described
as least important or valuable in terms of promoting student learning by both students and lecturers.

The problem of student learning in the Malaysian context is not entirely the result of a mismatch between teaching methods and student learning. Interestingly, hardly any mention was made of the effect of teaching methods on student learning. From the findings in the study the problem of Malaysian students' learning may be attributed to the lecturers' lack of sensitivity towards students' learning needs and towards the lack of their awareness of teaching innovations. Gaff (1978) ascribes the latter to the fact that "lecturers felt less comfortable to try new innovations". I partly subscribe to this because it would appear that the perceived limitations eg the students' incapability of independent learning, provided reasons for not innovating and trying out new innovations in teaching.

However, the evidence in the study, though limited, also suggests that the majority of the lecturers were receptive to new ideas. I feel that there is just not enough knowledge from research on student learning and teaching methods to inform teachers of new teaching techniques. It has been pointed out too that a high proportion of university lecturers had little teaching experience and no teaching qualifications when they joined the university. It is not an exaggeration, therefore, to suggest that they would teach the way they were taught (Elton, 1979d; Entwistle, 1981).

12.5.2 The Effect Of IL On Lecturer Role And Lecturer Orientation

The study was also an experimentation of IL in naturalistic situations set within the limits of the existing academic structure. The lecturers received it with mixed feelings but none were completely averse to it. The general mood was receptive but cautious and apprehensive about its implications on lecturer workload and time. Much of this apprehension was due to a misconception of what IL constitutes and the nature of Malaysian students' learning. This has implications for research on lecturer orientation.
My belief is that lecturers too, consciously or unconsciously, perceive different teaching methods to make different demands on them, which tends to induce them to react and teach in a particular way within that teaching mode. So the picture in the lecture is one where the lecturers may see their role as the presenters of information, and the students, on the other hand, may perceive their role as the recipients of that knowledge. This situation is reminiscent of what Jean Wright (1982) says about foreign students' inclination not to want to question 'authority'. (p. 6:10)

Lecturers' teaching approaches such as their "enthusiasm, sympathy, understanding of students' learning needs" have been seen to affect the students' study methods (Ramsden, 1979). Clearly, the reference in the literature has been focused on teacher attributes in the conduct of their teaching. It is not clear whether the methods of teaching used were implied. The present study makes the assertion that teaching methods may orientate teachers to adopt particular 'styles of teaching.' In IL it becomes incumbent on the lecturer to remain in the background and allow the students to take the centre stage of learning and within a composite teaching strategy, such as group interaction and individual tutorial, to relate more interactively directly or indirectly with students. However, they do not and should not relinquish their position as advisers and mediators of learning or even module-writers. In investigating student learning, future researchers should also study lecturer orientations in different teaching methods and how these relate to their 'teaching styles' and to student learning.

12.5.3 Matching Teaching Methods And Student Learning: Is It Crucial?

The question one may raise about teaching methods and student learning, however, is whether matching teaching methods with learning styles is crucial. The counter argument in Chapter 6 suggests that teaching methods should be varied to help students to accommodate to flexible learning situations. My own feeling is that it is helpful but not crucial. The primary aim of education is to promote effective learning among the majority. To improve university teaching, or for
that matter at any level, to-day means to cause more students to learn better than before, Green (1976).

The present study examined two distinct teaching methods in terms of student learning - IL and the lecture - and concludes that no one method is suited to all students. The point is, therefore, made that it is too ambitious and unrealistic to think in terms of flexible teaching methods in any one teaching and learning situation which can allow students to learn in their preferred way or ways. It may be more realistic to suggest that a teaching and learning situation can be engineered to orientate students to learn in a way which can promote learning for meaning while, at the same time, it is possible to design composite teaching methods within that framework which can, as far as possible, cater for the differences in student learning styles, approaches, and study methods in order to promote effective learning for the majority.

12.5.4 Teaching Methods And Learning Approaches

Having identified the problems, the study is intended to circumvent these and provide an opener for future research on teaching and student learning. The results of this study can have practical value for practicing teachers and researchers.

Up to now student performance in examination results has been used to measure the effectiveness of instruction. Student learning cannot be judged solely on the basis of examination results. Learning is a very complex process of interaction between the learners and the context in which they learn, and how the learners perceive this context, Laurillard (1978). One such context concerns the teaching methods that teachers adopt to teach students. The study tries to isolate the effects of teaching methods on student learning. It has been found that the lecture and IL evoked different study approaches and methods. These are reflected in some of the students' descriptions of learning in the lecture and IL which follow:

In the lecture:
- lecturers have extensive knowledge,
- lecturers can explain,
- don't really do much reading other than mug up lecture notes,
no-one to check lecture notes so can pile up,
- not much incentive to work on one's own,
- one's mind tends to wander elsewhere in lectures,
- wait until exams,
- best way just to listen,
- habit of being spoonfed,
- more interesting...punctuation with jokes.

In IL:
- work systematically,
- self-effort to acquire more knowledge,
- work at my own pace,
- more concentration is applied,
- gives me personal satisfaction,
- studied with care,
- reflection is done before proceeding to next modules,
- less pressure coping with individual level of understanding,
- apply what one has learnt,
- motivates me to read more,
- deadlines have to be met.

In the two different teaching contexts students' perceptions of what was expected of them differed. They approached their study differently as a result. In IL, the students showed an inclination to work independently, putting more self-effort and attention into their work and using 'deep level processing'. In IL, students may be seen to assume greater responsibility for their own learning shifting, as it were, from 'other directed' to 'self-directed' learning. It appears that in IL the SOL students tended to use a 'deep' approach to learning by abstracting meanings. They were not learning for mere reproduction of facts. It would appear that in IL the teaching situation induces a learning approach that is not "taken for granted" (Säljö, 1979), so that learning becomes more 'thematised'. This suggests that the students begin to reflect on the phenomenon of learning itself. There is some evidence of this in the study eg p. 9:19; p. 11:30; p. 9:32.
In the lecture situation, the SOL students have also indicated a sense of responsibility towards their own learning. This was evident from the transcripts of the SOL students, but the teaching milieu, which was described as authoritarian and examination oriented, had induced them to become LOL students using 'surface' level approach merely for playing the examination game. IL, on the other hand, presented a learning context in which the SOL students' latent feeling of responsibility became reinforced. Hence the easy shift in their conceptualisation of learning and adaptation to new and more challenging teaching and learning situations.

In the lecture there is a greater tendency for students to overly rely on the lecturers, thus developing a lecturer-oriented learning (LOL). The effect of IL on LOL students varies depending on other factors in the teaching and learning milieu. Nonetheless, the indication is that some LOL students may tend to become SOL students, but it is not clear whether they then use 'deep' or surface' approach learning. The findings suggest that they may use what Säljö suggests as a 'deep passive' approach which may be associated with the students' difficulty to move fully to a 'deep' approach in a new learning context. While it is possible for these students to adopt a 'deep passive' approach, they may fail to reach 'deep active' level because of the lack of attention and effort. It was as Säljö suggests easier to induce 'surface' learning than 'deep' learning.

These LOL → SOL students may in IL be induced to shift their conceptualisation of learning as a result of experience and perception of the demands of the task within the teaching and learning context of IL. Perry suggests a change in conceptualisation of learning as a result of intellectual development as a consequence of time. I would suggest as Säljö (1979) implies, that a change in the students' conceptualisation of learning can also occur as a result of direct experience and perceptions of the learning tasks irrespective of chronological implications. It is suggested, therefore, that it may be desirable to 'manipulate' the teaching and learning contexts to provide for that experience that can change the student's conception of learning and, consequently, study approach and study methods and habits.
In any teaching and learning context, there is bound to be a group of students who are very 'set' in their orientations. These are LOL students who remain LOL students whatever the teaching strategies used. Some of these students have been identified in the study as those students who were averse to IL and who preferred the lecture because it was 'easier to just listen'. They also preferred learning in groups. This study also tries to cater to the learning needs of this group.

The education of the majority can be taken in its wider sense to mean also the education of such students as the LOL students. So in teaching, individual differences have also to be catered for. The lecture treats all students alike when they are different (Elton, 1979a; Entwistle, 1981). IL tries to cater for individual differences in the sense of enabling students to work at their own speed within limits, because students vary in terms of their rate of reading, understanding and assimilation of facts. However, although IL is a more effective way of communicating with students, it is not effective to meet the personal liking of every student.

12.5.5 The Problem Of Personal Contact

If the aim of education is also to help this group of LOL students as well as the SOL students, then teaching methods must also aim to meet the needs of this minority group. The lecturers in the study strongly felt that Malaysian students required the personal contact with the lecturers which may be immediately absent in IL. The assumption made is that the lecture and tutorial can provide this desirable contact which IL could not, which again rests upon a misconceived idea of IL and misperception of what students' real learning needs are.

The evidence in the study is quite substantial that even the LOL students did not perceive the lecture as a medium of contact with lecturers, although it is evident that they value the lecturers' guidance and clarification of ideas and feedback.

Interviews with the students suggest that the students preferred two forms of contact for two different purposes. Firstly, they preferred some guidance in the form of brief lectures related to the main contents of the topic they were to study. Secondly, they
found interacting with the lecturer and a number of students around a table (which may use prepared materials as the basis for the discussion), more valuable and helpful as input of information and also feedback.

There was also substantial evidence that they preferred interacting with their peers more than with their lecturer in a lecture situation.

One may conclude from the evidence that the lecture and the tutorial, as they are currently practised, are by no means the most effective medium for interacting with students and for promoting student learning generally (a finding which has been confirmed in Western studies).

12.5.6 Towards A Teaching System

I have mentioned earlier that teaching methods can be designed to effect a 'deep' approach learning as well as to meet the needs of students. So working on the premise that students are alike and different, Model 3, Fig. 12.3, p. 12:11, was devised and tried out in the study. Group situations cannot only cater for the way students are alike, but also provide extensions and applications of what they study in IL. IL and individual tutorial cater for the way they are different. The lectures (fewer in numbers) still have a very useful function as advance organisers and for providing a feedback and the confidence that students need. In the study, the lectures as advance organisers were not systematically carried out, but the evidence is strong to suggest that they would not only be useful but imperative in teaching and learning under the present circumstances. The effects of Model 3 on the learning styles of LOL students are not as yet fully evident. More research over a longer period of time along the dimensions of the suggested model is required to produce more reliable results.

In any case, I hope the tentative findings of Model 3 can stimulate further research in student learning and teaching methods, because there are very good reasons for not continuing to do what all along has caused teachers and students dissatisfaction - ie lecturing to a 'passive, faceless audience'. The following quote expresses
well my own sentiments about teaching and learning in the Malaysian context.

"We will do today what we did yesterday, unless there are very good reasons for doing otherwise. The good reasons which are necessary if we do not do today what we did yesterday are derived from dissatisfaction with what we did yesterday or with what happened to us yesterday."

(K.E. Boulding, The Image, Univ. of Michigan, 1956)

And the sooner the dissatisfactions are overcome, the quicker we can remedy the present image of Malaysian students which has not only been confined to their learning in school and higher education, but which also now pervades the occupational field as one lecturer in an interview remarked:

"...one of the comments made by employers...the university student...has to be guided...has to listen to orders...doesn't do own part on own initiative...never gives his ideas unless told to..."

12.6 IMPLICATIONS FOR FURTHER RESEARCH

Some implications of the research have been mentioned in the last section. They are now specifically identified:

(a) A longitudinal study of teaching methods on learner orientation and learning approaches

The present study has only looked at IL with individual tutorial and group interaction tasks for a short period of time. Model 3, Fig. 12.3, p. 12:11, is a hypothetical model which is developed on the basis of only this short investigation, but it does reflect the effects of IL and group interaction tasks on student learning. Studying the effects of teaching methods on student learning over a longer span of time, can allow the systematic study of more permanent changes as Laurillard (1978) suggests. The lecturers in the model were intended as advance organisers, but in the present study only three 10-minute lectures preceded the IIL, more out of necessity than as a systematic design of the study. Future research could be based on a more systematic use and organisation of the teaching
methods recommended in the model using IL as the basic teaching technique.

(b) Lecturer orientation and student learning

The present study is focused on the learning orientations of students. However, the analysis of the results has evolved findings which relate to lecturer orientation in the context of particular teaching methods. It would be important for future research into student learning to also investigate the effects of particular teaching methods on lecturer orientations and teaching styles and the effects of these on student learning.

(c) Research on IL at secondary school level

Throughout the study Malaysian learners were perceived to be passive and very dependent on their teachers. In fact they were said to be used to 'spoonfeeding' right from school. There is an implication here for trying out and investigating IL in secondary schools with the aim of nurturing a new generation of more self-reliant learners who can be made to be more responsible for their own learning at an earlier age right through to tertiary education. As Campbell (1964) says:

"If self-direction were to begin in school and increase in scope as the student demonstrated his competence at it and saw that his reward was greater freedom and responsibility, by the time he was an adult the cumulative effect on his problem-solving, decision-making, and creativeness might be impressive."

(d) Methodological implications

The study has confirmed the value of a triangulated approach as a research method. This has been found to be helpful in highlighting issues which would not otherwise have emerged:

i. The use of a survey using a closed and open ended questionnaire to a larger population, provided findings which were representative of majority responses and, therefore, constituted a firmer basis for making interpretations than purely qualitative methods.
The use of a case study approach and semi-structured interviews presented me with very rich data which further illuminated the quantitative data.

Similarly, the repertory grid technique of data gathering proved a very powerful tool which helped students and lecturers to articulate their own conceptual structures relating to teaching methods and student learning. It also provided a process of crosschecking the findings from other data analysis and added to the authenticity of these findings.

12.7 EPILOGUE

The very personal nature of the learning process makes the findings of this study necessarily tentative. However, it is in its tentativeness that others might find inspiration to carry on the endeavour in search of alternative ways of teaching for better learning. And for the learners (and we are all learners) learning never ceases:

"After all, what is education but a process by which a person begins to learn how to learn?"

Peter Ustinov
dear Me

"The only man who is educated is the man who has learned how to learn...how to adapt and change."

Carl Rogers
Freedom to Learn


375


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378


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Dear colleagues,

I am a staff member with the Faculty of Education, University of Malaya. I am currently a research student studying Educational Technology at the University of Surrey, England and my main interest is in teaching and learning in Higher Institutions.

The aim of this survey is to gather some information which will provide me with a general framework for a subsequent study on an innovative teaching method. The specific aims of this survey are:

1. to survey the teaching methodologies that are currently being used in the faculties in the University of Malaya;
2. to elicit your views on aspects of evaluation with particular reference to evaluating the lecture method. A Lecture Feedback Questionnaire is attached for your perusal and use if you so wish;
3. to survey your views on other teaching methodologies which can be used;
4. to survey factors which tend to inhibit the development of innovative teaching methods; and
5. to study the scope for the training in teaching of staff members who have not as yet had any training in teaching.

The information that will be gathered from this survey, I hope, will throw some light on the Teaching and Learning situation in the U.M., and the factors which affect our teaching methods and our students' learning. As the lecture method will always be the predominant method of teaching, it would be worthwhile to find out the extent to which we can improve it or support it with other viable methods within the context of our University in general, and our own Faculty and department in particular.

The responses from the survey will be COMPLETELY ANONYMOUS and CONFIDENTIAL. So please respond as ACCURATELY as you can and COMPLETE every QUESTION.

THANK YOU VERY MUCH

ROHANA ZUBIR
FACULTY OF EDUCATION
UNIVERSITY OF MALAYA
AUGUST 1980
The questionnaire has been structured in a particular way not only to elicit your perceptions along specified dimensions but also to elicit your free responses. For this purpose I have left a column on the right hand side for you to enter further comments on aspects which you feel have not been adequately covered by my questions or which have not been explicitly stated.

Note: I WELCOME COMMENTS AND CORRECTIONS ON THE ITEMS. SO PLEASE FEEL FREE TO WRITE YOUR COMMENTS AND CORRECTIONS OR TO THE QUESTIONS AS YOU WORK THROUGH THE PAGES. THANK YOU.

Please answer as ACCURATELY as you can. Please note that your response is ABSOLUTELY CONFIDENTIAL and ANONYMOUS.

1. Please indicate how long you have been teaching in the University in one or more capacities mentioned below.

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>as a tutor</td>
<td></td>
</tr>
<tr>
<td>as a lecturer</td>
<td></td>
</tr>
<tr>
<td>as an associate professor</td>
<td></td>
</tr>
<tr>
<td>as professor</td>
<td></td>
</tr>
<tr>
<td>in any other teaching capacity. (Kindly specify)</td>
<td></td>
</tr>
</tbody>
</table>

2. Some teaching methods as specified below are used in higher institutions. You may like to indicate your definition of some of these methods. Please select the methods which you feel require defining in your own terms. Underline the ones you select and define them in the space provided overleaf. You will see that I have given my own definition of the term individualised instruction in the footnote.

- seminars
- tutorials
- workshops
- lectures
- micro-teaching
- laboratory work

*individualised instruction*

*individualised instruction* - I am using the term to refer to all methods of teaching whereby the students work independently at their own pace on either teacher-prepared materials or textbooks both of which are accompanied by study guides.
3. (a) Please indicate the teaching method(s) you use in your teaching by ticking the 'Use' column.

(b) In addition to item (a), please give some indication of your preferences for each of the methods by putting a rating of between 1 and 5 in the preference column of each of the methods where 

5 indicates high preference

1 indicates low preference and

2, 3, and 4 are intermediate positions of preferences.

<table>
<thead>
<tr>
<th>Method</th>
<th>Use</th>
<th>Prefer</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) seminar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ii) tutorials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(iii) workshops</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(iv) lectures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(v) micro-teaching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(vi) laboratory work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(vii) individualised instruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please specify any other method used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(viii)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ix)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. (a) Please indicate the course(s) you are teaching.

Course(s) I teach: (A) __________________

(B) __________________

(C) __________________
(b) For each course which you specified in 4(a) please indicate the number of hours per week you teach using the following methods. Write the number of hours in the appropriate box:

<table>
<thead>
<tr>
<th>(i) seminars</th>
<th>Course A</th>
<th>Course B</th>
<th>Course C</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ii) tutorials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(iii) workshops</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(iv) lectures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(v) micro-teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(vi) laboratory work</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(vii) individualised instruction</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please specify any other method used.

(viii)

(ix)

5. What knowledge do you have about the following teaching methods? Please tick the appropriate column.

<table>
<thead>
<tr>
<th>(i) seminars</th>
<th>I have a very good knowledge</th>
<th>I have a fairly good knowledge</th>
<th>I have a little knowledge</th>
<th>I have no knowledge at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ii) tutorials</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(iii) workshops</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(iv) lectures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(v) micro-teaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(vi) laboratory work</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(vii) individualised instruction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please specify any other method used.

(viii)

(ix)
6. What experience have you in using the following teaching methods? Please tick the appropriate column.

<table>
<thead>
<tr>
<th>Method</th>
<th>I have a lot of experience</th>
<th>I have some experience</th>
<th>I have little experience</th>
<th>I have no experience at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) seminars</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ii) tutorials</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(iii) workshops</td>
<td></td>
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<tr>
<td>(iv) lectures</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>(v) micro-teaching</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>(vi) laboratory work</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(vii) individualised instruction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please specify any other methods used.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>(viii)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ix)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. (a) Do you think individualised instruction* would be a viable method which can be used to supplement the lecture method within the context of your own department? Please tick the appropriate box.

<table>
<thead>
<tr>
<th>Answer</th>
<th>Yes</th>
<th>No</th>
<th>I don't know enough to comment on it</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* individualised instruction - I am using the term to refer to all methods of teaching whereby the students work independently at their own pace on either teacher-prepared materials or textbooks both of which are accompanied by study guides.
8. (a) The tutorial may be used for a variety of purposes. Please indicate the purposes of the tutorial as a method of teaching as you perceive it and indicate what in your opinion is the ideal number of students in a tutorial for each purpose.

<table>
<thead>
<tr>
<th>Tutorial purpose(s)</th>
<th>Ideal number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>i.</td>
<td></td>
</tr>
<tr>
<td>ii.</td>
<td></td>
</tr>
<tr>
<td>iii.</td>
<td></td>
</tr>
<tr>
<td>iv.</td>
<td></td>
</tr>
<tr>
<td>v.</td>
<td></td>
</tr>
</tbody>
</table>
(b) The seminar may be used for a variety of purposes. Please indicate the purposes of the seminar as a method of teaching as you perceive it and indicate what in your opinion is the ideal number of students in a seminar for each purpose.

<table>
<thead>
<tr>
<th>Seminar purpose(s)</th>
<th>Ideal number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>i.</td>
<td></td>
</tr>
<tr>
<td>ii.</td>
<td></td>
</tr>
<tr>
<td>iii.</td>
<td></td>
</tr>
<tr>
<td>iv.</td>
<td></td>
</tr>
<tr>
<td>v.</td>
<td></td>
</tr>
</tbody>
</table>

9. What is the size of your tutorial and/or seminar groups with reference to the courses which you specified in 4(a) page 4.

<table>
<thead>
<tr>
<th>Courses I teach</th>
<th>Number of students</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in a tutorial</td>
<td>in a seminar</td>
</tr>
<tr>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. What teaching methods would be best suited to help our students become more self-reliant in their learning? Please indicate your responses in the space provided below.
11. What specific skills and abilities would you like to see developed in students in your course? Please list as many as you think are necessary under Column A. Then indicate for each skill/ability the suitability of each method in turn by placing a number from 1 - 4 in each cell of the matrix where:

- 4 = completely suitable
- 3 = suitable
- 2 = unsuitable
- 1 = completely unsuitable

<table>
<thead>
<tr>
<th>Column A</th>
<th>Method</th>
<th>(i)</th>
<th>(ii)</th>
<th>(iii)</th>
<th>(iv)</th>
<th>(v)</th>
<th>(vi)</th>
<th>(vii)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skill/Ability</td>
<td>seminars</td>
<td>tutorials</td>
<td>workshop</td>
<td>lectures</td>
<td>individual instruction</td>
<td>laboratory work</td>
<td>Aids</td>
<td>Aids</td>
</tr>
<tr>
<td>(a)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>(b)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>(c)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(d)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(f)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(g)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
12. (a) In your course, in addition to the lecture method, do you see the need to supplement it with other teaching methods?

- Yes
- No

(b) If your answer is YES in 12(a), please indicate which teaching methods can best supplement the lecture method. Please rank the usefulness of each method as an adjunct to the lecture method from 1 to 5/6/7/8 etc where:

- Rank 1 = the most useful
- Rank 2 = the next most useful
- and so on down to 6, 7, 8 etc. (depending on the number of other methods specified) being the least useful adjunct.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

402
13. What reasons can you think of which appear to make it difficult for you to implement innovative teaching methods? I have identified two possible difficulties. You may have more to add in which case please add these to the list; then identify from the list of difficulties that which you see as being most serious by putting an asterisk (*) next to it.

Possible difficulties

(i) Large numbers of students
(ii) Lack of facilities
(iii) _______________
(iv) _______________
(v) _______________
(vi) _______________
(vii) _______________
14. In your view what is the value of the following types of evaluation methods for the purpose of improving teaching and learning in higher institutions:

<table>
<thead>
<tr>
<th></th>
<th>Valuable</th>
<th>Not Valuable</th>
<th>Please add further comments to elaborate your answer if you wish</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>Evaluation of courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ii)</td>
<td>Studies to find out how students learn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(iii)</td>
<td>Evaluation of teaching by Students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(iv)</td>
<td>Evaluation of teaching by Colleagues</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please specify any other type of evaluation and indicate its value.

(v) 

15. What are your views towards using a Lecture Feedback Questionnaire of the kind attached for self-diagnostic purpose? Please write your comments below.
16. Would you be interested to use the Lecture Feedback Questionnaire?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

If Yes please fill up the Response Form attached and return it to me.

If No please also fill up Response Form attached and return it to me.

17. (a) Do you think the University should provide opportunities for the training and retraining of staff members in teaching?

<table>
<thead>
<tr>
<th></th>
<th>Please tick where appropriate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tutors</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td></td>
</tr>
<tr>
<td>Retraining</td>
<td></td>
</tr>
</tbody>
</table>

No (a) No, it should not be the University's responsibility, but all staff members must be trained to teach at the time of appointment.

(b) No, no training or retraining is necessary

(b) If your answer is Yes in 17(a) what suggestions would you like to give for this training and the retraining of the staff members in the University of Malaya. Kindly write comments and suggestions in the space provided under the following headings. Please add further headings if necessary and write your comments accordingly.

Leave

Type of Training

Duration of Training

Please use the page overleaf if you need more space
THANK YOU FOR YOUR PATIENCE in answering this Questionnaire so far. I would just like to tax you a LITTLE MORE and ask you a few more final questions in order to help me further.

General Background questions

18. In which Faculty are you teaching?

19. In which Department within your Faculty are you teaching?

20. Can you please indicate your designation by ticking the appropriate box?

   Professor
   Associate Professor
   Lecturer
   Other. (Please specify)

21. Please indicate the year when you were first appointed as a teaching staff in your Faculty.

22. (a) Did you ever receive any formal training in teaching?

   Yes
   No

   (b) Please specify your teaching qualification(s) and indicate when you acquired it (them).

<table>
<thead>
<tr>
<th>Certificate in Education</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dip.Ed.</td>
<td></td>
</tr>
<tr>
<td>B.Ed.</td>
<td></td>
</tr>
<tr>
<td>M.Ed.</td>
<td></td>
</tr>
<tr>
<td>In-service</td>
<td></td>
</tr>
<tr>
<td>(Please specify any other qualification and indicate the year when you acquired it)</td>
<td></td>
</tr>
</tbody>
</table>
23. After you had acquired your teaching qualification(s) what had been your experience in teaching and for how long?

<table>
<thead>
<tr>
<th>Please tick where relevant</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>In primary school</td>
<td></td>
</tr>
<tr>
<td>In secondary school</td>
<td></td>
</tr>
<tr>
<td>In colleges</td>
<td></td>
</tr>
<tr>
<td>In Universities</td>
<td></td>
</tr>
<tr>
<td>(Please specify any other experience)</td>
<td></td>
</tr>
</tbody>
</table>

24. (a) If your answer is NO in 22(a), skip this question and move on to the next question.

How many years since you had your first training in teaching?

[ ] years

(b) Have you had any retraining since?

Yes [ ]

No [ ]

If your answer is YES in 24(b) please specify the type of retraining you had.
25. If you have had NO teaching qualifications how long have you had teaching experience before your present appointment. If you had had no experience please tick the appropriate box.

<table>
<thead>
<tr>
<th>Teaching experience</th>
<th>Please tick the appropriate box</th>
<th>Years</th>
<th>No experience before present appointment</th>
</tr>
</thead>
<tbody>
<tr>
<td>in primary school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in secondary school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in colleges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in universities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please specify any other experience</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

26. If you have had no formal training in teaching please indicate whether you have had experience in any informal training (e.g. short courses etc.) Please write your answers under the various headings and if necessary, please add your own relevant headings.

**Type of Course(s)**

**Where the course was conducted**

**Who sponsored the course(s)**

**Duration**
27. If you have any additional comments you wish to make please do not hesitate to write them down in the space provided below.

I am VERY GRATEFUL for YOUR PARTICIPATION in this survey. I am certain the information gathered would be useful to all of us who are committed to Teaching and Learning in higher institutions.
### APPENDIX A2

Table 3.2  Knowledge & Experience Of Lecturers In Teaching Methods In 9 Faculties

**Key to Responses:**
- VG = Very good
- FG = Fairly good
- VL = Very little
- NAA = Not at all

<table>
<thead>
<tr>
<th></th>
<th>Knowledge</th>
<th>Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ARTS</td>
<td>ECONOM.</td>
</tr>
<tr>
<td>Seminar</td>
<td>77.8</td>
<td>22.2</td>
</tr>
<tr>
<td>Workshop</td>
<td>27.8</td>
<td>72.2</td>
</tr>
<tr>
<td>Tutorials</td>
<td>72.2</td>
<td>27.8</td>
</tr>
<tr>
<td>Lectures</td>
<td>83.3</td>
<td>16.7</td>
</tr>
<tr>
<td>Micro</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Teaching</td>
<td>11.1</td>
<td>88.9</td>
</tr>
<tr>
<td>Laboratory work</td>
<td>22.2</td>
<td>77.8</td>
</tr>
</tbody>
</table>
### Table 3.3 Percentage Of Trained (Formal & Informal) Teachers, University of Malaya, Kuala Lumpur

**Key to Responses:**
- **TPR** = Total possible responses
- **R** = Responses
- **NR** = No response

<table>
<thead>
<tr>
<th></th>
<th>TPR</th>
<th>R</th>
<th>NR</th>
<th>% R</th>
<th>Yes</th>
<th>%</th>
<th>No</th>
<th>%</th>
<th>NR</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS</td>
<td>18</td>
<td>16</td>
<td>2</td>
<td>77.8</td>
<td>5</td>
<td>27.8</td>
<td>11</td>
<td>61.1</td>
<td>2</td>
<td>11.1</td>
</tr>
<tr>
<td>ECONOMICS</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>100</td>
<td>1</td>
<td>10.0</td>
<td>9</td>
<td>90.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>EDUCATION</td>
<td>16</td>
<td>16</td>
<td>0</td>
<td>100</td>
<td>15</td>
<td>93.7</td>
<td>1</td>
<td>6.3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ENGINEERING</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>100</td>
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<td>40</td>
<td>3</td>
<td>60</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
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<td>1</td>
<td>1</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>50</td>
<td>1</td>
</tr>
<tr>
<td>MEDICAL/DENTAL</td>
<td>16</td>
<td>16</td>
<td>0</td>
<td>100</td>
<td>4</td>
<td>25</td>
<td>12</td>
<td>75</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>LANGUAGE CENTRE</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>100</td>
<td>2</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SCIENCE</td>
<td>15</td>
<td>15</td>
<td>0</td>
<td>100</td>
<td>2</td>
<td>13.3</td>
<td>12</td>
<td>80.0</td>
<td>1</td>
<td>6.7</td>
</tr>
<tr>
<td>TOTAL</td>
<td>84</td>
<td>81</td>
<td>3</td>
<td>96.4</td>
<td>31</td>
<td>36.9</td>
<td>49</td>
<td>58.3</td>
<td>4</td>
<td>4.8</td>
</tr>
</tbody>
</table>

**NEED FOR TRAINING & RETRAINING**

<table>
<thead>
<tr>
<th>ARTS</th>
<th>TPR</th>
<th>R</th>
<th>NR</th>
<th>% R</th>
<th>Yes</th>
<th>%</th>
<th>No</th>
<th>%</th>
<th>NR</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECONOMICS</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>100</td>
<td>2</td>
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<td>2</td>
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<td>60</td>
</tr>
<tr>
<td>EDUCATION</td>
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<td>16</td>
<td>0</td>
<td>100</td>
<td>15</td>
<td>16</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
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<td>5</td>
<td>5</td>
<td>0</td>
<td>100</td>
<td>3</td>
<td>60</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>50</td>
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<td>50</td>
</tr>
<tr>
<td>MEDICAL/DENTAL</td>
<td>16</td>
<td>16</td>
<td>0</td>
<td>100</td>
<td>3</td>
<td>18.7</td>
<td>1</td>
<td>6.3</td>
<td>12</td>
<td>75.0</td>
</tr>
<tr>
<td>LANGUAGE CENTRE</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>100</td>
<td>2</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SCIENCE</td>
<td>15</td>
<td>15</td>
<td>0</td>
<td>100</td>
<td>13</td>
<td>66.7</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>6.7</td>
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</tbody>
</table>

**TOTAL**

<table>
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<tr>
<th>TPR</th>
<th>R</th>
<th>NR</th>
<th>% R</th>
<th>Yes</th>
<th>%</th>
<th>No</th>
<th>%</th>
<th>NR</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>84</td>
<td>81</td>
<td>3</td>
<td>96.4</td>
<td>31</td>
<td>36.9</td>
<td>49</td>
<td>58.3</td>
<td>4</td>
<td>4.8</td>
</tr>
<tr>
<td>71</td>
<td>84.5</td>
<td>3</td>
<td>66.7</td>
<td>68</td>
<td>90.7</td>
<td>68</td>
<td>81</td>
<td>71</td>
<td>10.7</td>
</tr>
</tbody>
</table>
### Table 3.4 Lecturers' Knowledge & Experience Of Micro Teaching & Individualised Learning In 9 Faculties In University of Malaya, Kuala Lumpur

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Micro Teaching Knowledge</th>
<th>Micro Teaching Experience</th>
<th>IL Knowledge</th>
<th>IL Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>V good &amp; some</td>
<td>Little &amp; none</td>
<td>V good &amp; some</td>
<td>Little &amp; none</td>
</tr>
<tr>
<td>ARTS*</td>
<td>0 %</td>
<td>100 %</td>
<td>22.2 %</td>
<td>77.8 %</td>
</tr>
<tr>
<td>ECONOMICS*</td>
<td>0 %</td>
<td>100 %</td>
<td>30 %</td>
<td>70 %</td>
</tr>
<tr>
<td>EDUCATION*</td>
<td>100 %</td>
<td>0 %</td>
<td>75 %</td>
<td>25 %</td>
</tr>
<tr>
<td>ENGINEERING</td>
<td>20 %</td>
<td>80 %</td>
<td>60 %</td>
<td>40 %</td>
</tr>
<tr>
<td>LAW</td>
<td>0 %</td>
<td>100 %</td>
<td>0 %</td>
<td>100 %</td>
</tr>
<tr>
<td>LANGUAGE CENTRE</td>
<td>50 %</td>
<td>50 %</td>
<td>100 %</td>
<td>0 %</td>
</tr>
<tr>
<td>MEDICAL/ DENTAL</td>
<td>18.8 %</td>
<td>81.2 %</td>
<td>43.7 %</td>
<td>56.2 %</td>
</tr>
<tr>
<td>SCIENCE*</td>
<td>66.7 %</td>
<td>33.3 %</td>
<td>40 %</td>
<td>60 %</td>
</tr>
</tbody>
</table>

Note: *Only faculties having response return between 10 to 18 were considered in the calculation (so 77 out of 84 respondents = 91.7%)
### APPENDIX A5

Table 3.6 Recurrent Features Of Teaching Methods Identified In Lecturers' Definitions Of Teaching Methods

<table>
<thead>
<tr>
<th>LECTURE</th>
<th>Arts</th>
<th>Economics</th>
<th>Education</th>
<th>Engineering</th>
<th>Law</th>
<th>Medical</th>
<th>Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Lecture delivers/knowledge is transmitted/exposition of given subject</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Input 100% lecturer; little feedback; one way process; minimum student participation; to group of passive listeners; little or no queries from audience: monologue...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Lecture with illustration should use audio-visual aids</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td></td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide main simplified facts to guide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Oral, fast talk or explanations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TUTORIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Small group</td>
</tr>
<tr>
<td>2 Two-way interaction</td>
</tr>
<tr>
<td>3 Purpose:</td>
</tr>
<tr>
<td>- Clarification of lecture topics</td>
</tr>
<tr>
<td>- Intensive discussion of lecture topics</td>
</tr>
<tr>
<td>- Identification of gaps in knowledge</td>
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<td>- Discuss previously set questions, problems, topics</td>
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<tr>
<td>- Present essays, guide essay writing procedure, discuss essay by lecturer</td>
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<tr>
<td>- Direct further reading</td>
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<td>- Give individual attention</td>
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<td>- Feedback to lecturer</td>
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<td>- Teaching</td>
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<td>5 Lectures as guide</td>
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**SEMINAR**

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<td>- Moderation and final comment by faculty lecturers, guides, regulate &amp; compliments</td>
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<td>- discussion at end of participation</td>
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<td>- Assessment/feedback comments by other students &amp; lecturers &amp; criticisms at end</td>
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**WORKSHOP**

- Working sessions in which problems are identified brainstorming/proposals/new ideas | 1 | 1 | 1 | 1 | 1 | 1 |

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### MICRO TEACHING

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<th>Law</th>
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<th>Science</th>
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<tbody>
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<td>Practical skills in simulated &amp; controlled reaching &amp; learning situation in front of camera</td>
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<td>Small group teaching, teacher + 2 or 3 students using audio-visual aids possible</td>
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### LABORATORY TEACHING

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<th>Law</th>
<th>Medical</th>
<th>Science</th>
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<td>Language laboratory; reading assignments</td>
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<td>Discovery of practical aspects of theory, students become acquainted with tools of trade &amp; formalities of investigative technique</td>
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<td>Microscopic studies of tissue of body, dissection test or exam</td>
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<td>Students divided into groups of 16 to work on set tasks under lecturer supervision</td>
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### INDIVIDUALISED LEARNING

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<th>Law</th>
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<td>Guided reading (MEd)</td>
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### Table 3.7 Ranking Of Suitability Of Teaching Methods For Development Of Learning Skills And Abilities

Responses correspond: 4 completely suitable 3 suitable 2 unsuitable 1 completely unsuitable

*Example: 3(4) = 3 persons indicate that seminar is completely suitable for acquisition of knowledge

<table>
<thead>
<tr>
<th></th>
<th>Seminar</th>
<th>Tutorial</th>
<th>Workshop</th>
<th>Lecture</th>
<th>Micro Teaching</th>
<th>Laboratory Teaching</th>
<th>Individualised Learning</th>
<th>Other Methods (Law &amp; Science)</th>
<th>Group Work (Language Institute)</th>
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<tr>
<td>1. Knowledge (eg mastery of contents; amassing facts; factual learning)</td>
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<td>2. Comprehension (eg of concepts; grasp ideas; thoughts &amp; assumptions)</td>
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<td>3. Application (eg ability to apply; use of knowledge &amp; skills for the nation; extrapolate)</td>
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<td>4. Analysis (eg ability to reason; problem solving; interpretation; recognition of analysis; ability to make inferences; relationships; cope with logic of an agreement)</td>
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<td>5. Synthesis (eg ability to integrate knowledge; present facts in logical sequence; organise information; summarise important points; perspectives)</td>
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<td>6. Evaluation</td>
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<td>Micro Teaching</td>
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<td>Individualised Learning</td>
<td>Other Methods</td>
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<td><strong>B COMMUNICATION SKILLS</strong>&lt;br&gt;(eg accuracy in writing; accuracy &amp; fluency in speech; formal oral communication; group interaction; exchange of ideas)<strong>&lt;br&gt;</strong></td>
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<td><strong>C STUDY METHOD</strong>&lt;br&gt;(eg research; extract information from sources; hardworking; self-reliance; self-management; self-study independent search of knowledge)<strong>&lt;br&gt;</strong></td>
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<td><strong>D AFFECTIVE SKILL</strong>&lt;br&gt;1. (eg imagination, originality, creativity)&lt;br&gt;ability to make inferences; relationships; cope with logic of an agreement)&lt;br&gt;2. Intuition&lt;br&gt;3. Initiative&lt;br&gt;4. Patience&lt;br&gt;5. Eagerness&lt;br&gt;**</td>
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<th>Individualised Learning</th>
<th>Other Methods Assignments (Law &amp; Science)</th>
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<th>Group Work (Language Institute)</th>
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<td>(eg accuracy in writing; accuracy &amp; fluency in)</td>
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Table 3.8: Usefulness of Teaching Methods to Supplement the Lecture by Nine Faculties at University of Malaya

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<td>1(1) 5(2) 2(3) 8(1) 1(2) 1(5)</td>
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<td>3(1) 3(2) 1(3)</td>
<td>1(2) 1(5)</td>
<td>3(1) 1(2) 1(3) 1(4) 2(5) 1(6)</td>
<td>2(3) 1(7)</td>
<td>1(1) 4(1) 2(2) 1(4) 2(5)</td>
<td>1(2) 1(3) 2(4) 2(5) 1(6)</td>
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<tr>
<td>Assignments</td>
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<td>Individual Tuition</td>
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<tr>
<td>Practical Field Project</td>
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<tr>
<td>Discussion among students</td>
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<tr>
<td>Research Projects</td>
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<tr>
<td>Technique</td>
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<td>Clinical</td>
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<tr>
<td>Homework</td>
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<td></td>
</tr>
</tbody>
</table>

Key to Responses: 1 = Most useful 2 = The next most useful 3-8 = 3rd, 4th, 5th, 6th, 7th & 8th being the least useful

* = Written work  ** = Case study
APPENDIX B1

The evaluation sheets overleaf

(a) are specimens of feedback questionnaires which were interleaved within the ILM at the pilot stage.

(b) were adapted from M.B. Nathenson, and E.S. Henderson (1980): Using student feedback to improve learning materials, London: Croom Helm.
1  (a) One of the reasons for including an **Overview** at the beginning of the text is to help students understand the **Objectives** of the text. Have you found the Overview in the text helpful in this respect?  

Yes ( ) No ( )

(b) Please explain your answer.

2  Is there any part of the **Overview** which is not clear to you? Please specify.

3  (a) Do you think every Unit should have an **Overview** at the beginning of the text?  

Yes ( ) No ( )

(b) Please explain your answer.
1. What did you do with the objectives of this text? (Did you ignore them, read them rather quickly; read them more than once, study each one carefully, or what?)

2. Approximately how long did you spend on the objectives? ( ) minutes

3. Did the objectives make you want to get into the subject-matter, put you off, or what?

4. (a) Did you have any difficulty in understanding what is meant by any of the objectives? YES ( ) NO ( )

(b) If yes, please specify.

5. (a) One of the reasons for including a list of objectives at the beginning of a text is to tell students in advance what they are expected to learn in the text. Have you found the objectives in this text helpful in this respect? YES ( ) NO ( )

(b) Please explain your answer.

ANY OTHER COMMENTS? (Please continue overleaf).
1. (a) Was section clear to you? Yes ( ) No ( )
(b) If not, please say briefly what was not clear.

2. Do you have any suggestions for how any part of this section might have been made clearer?

3. Was the number of examples in this section:
   - too few? ( )
   - about right ( )
   - too many ( )

4. Did you find section interesting, boring, or what?

5. Did you find section just right, or what?
   - too difficult, too easy, ( )
   - just right, or what? ( )

6. ANY OTHER COMMENTS (please continue overleaf if necessary)
1. (a) Did you answer all the questions in Activity 1? Yes ( ) No ( )
   (b) If not, please say which ones you did not try to answer and why?

2. (a) Did you understand what each question was asking you to do? Yes ( ) No ( )
   (b) If not, which questions were not clear? Please enter the question numbers below.

3. Please write below the numbers of each question where your answer agreed with that of the author.

4. What did you do if you got any answers wrong?

5. (a) Has the activity been helpful to you to assess your own understanding of the material covered in the text? Yes ( ) No ( )
   (b) Please explain your answer in the space below and overleaf if necessary.

IN ADDITION
If you have any other comments regarding this activity please use the space overleaf.
1. (a) Did you understand what the assignment was asking you to do? YES ( ) NO ( )
(b) If not, please suggest how the assignment might have been made clearer to you.

2. One of the reasons for including an assignment in the Unit is to monitor your progress in learning from the self-paced instructional units. Have you found doing the assignment helpful in this respect? YES ( ) NO ( )
Please explain your answer.

3. Not every Unit has an assignment. Do you think there should be an assignment in every Unit? YES ( ) NO ( )
Please explain your answer.

4. ANY OTHER COMMENTS? (Please continue overleaf if necessary.)
## Objectives and Assessment in the Classroom

**STUDY GUIDE**

1. (a) Has the Study Guide given you a clear idea about how the text is structured? **YES ( ) NO ( )**
   
   (b) If not, which parts of the Guide are not clear?

2. Which parts of the Guide did you like the most?

3. Which parts did you like the least?

4. What information, if any, was missing from the Guide which you would have liked to be included?

5. Which parts, if any, of the Guide did you find redundant?

Any other comments? (Please continue overleaf)
1. (a) Were the questions in the Self-Test clear to you?  
   Yes ( )  No ( )  
   (b) Please indicate which questions were not clear to you.

2. Do you have any suggestions for how any of the questions might have been made clearer?

3. What are your views with regard to the Self-Test Profile?

4. Do you have any suggestions for how the Self-Test Profile can be improved?

ANY OTHER COMMENTS
APPENDIX B2

PROGRESS CHART

| (a) Your Name: | (d) Date when Unit was collected: |
| (b) Partner's Name: | (e) Total number of hours you take to do the Unit: |
| (c) Unit No.: | (f) Date when Progress Chart is handed in: |

INSTRUCTIONS

(i) Use a carbon paper to fill in the Chart. Keep the top copy for yourself and hand in the carbon copy to me.
(ii) Put a tick (✓) in the appropriate column to indicate the extent to which you think that you have achieved each objective.
(iii) Do not forget to fill in the particulars at the top of this Progress Chart.

A. HOW WELL HAVE I ACHIEVED THE OBJECTIVES?

<table>
<thead>
<tr>
<th>Objective achieved?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
</tr>
</tbody>
</table>

At the end of this Unit you will be able to:

(i) appreciate the functions of assessment in the classroom by stating some useful ways of using assessment results.
(ii) distinguish between criterion-referenced and norm-referenced assessment.
(iii) given a list of assessment procedures, distinguish each of these in turn, into either criterion-referenced or norm-referenced assessment.
(iv) distinguish between summative and formative assessment.
(vi) relate summative and formative assessment to criterion-referenced and norm-referenced assessment.
B. How well have I done the Activities?

Instructions

1. Check column 'a' first. Put a tick (✓) against the activities and sub-activities which you attempted. Leave blank those activities or sub-activities which you did not attempt.

2. Compare all your answers with the given answers. Where there are no correct answers, certain criteria are given for rating your activity. Rate your performance accordingly by checking the 'b' column. The 'b' column gives the correct responses or the criteria you will use to give yourself points and the 'c' column indicates the maximum points each activity deserves.

3. It is advisable for you and your partner to rate each other's performance so that your marking may be more objective.
### Activities

<table>
<thead>
<tr>
<th>((\checkmark)) the activities which you attempted</th>
<th>b</th>
<th>c</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activities No.</strong></td>
<td><strong>Sub.No.</strong></td>
<td><strong>Tick Here</strong></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Give yourself/partner 2 pts. for each of your answer which corresponds to the following: Test results can be used for:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Giving pupils a feedback on their progress.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Evaluating effectiveness of teaching.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Grading pupils.</td>
<td></td>
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<tr>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td>Give yourself/partner 1 pt. for each of your response which corresponds to the author's:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(i)</td>
<td>(v)</td>
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<tr>
<td>(ii)</td>
<td>(vi)</td>
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<tr>
<td>(iii)</td>
<td>(vii)</td>
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<tr>
<td>(iv)</td>
<td>(viii)</td>
<td></td>
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<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The correct response to each question is Yes. Give yourself/partner 2 pts. for each correct answer and 2 further pts for each explanation which corresponds to the author's.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(i)</td>
<td>(iii)</td>
<td></td>
</tr>
<tr>
<td>(ii)</td>
<td>(iv)</td>
<td></td>
</tr>
<tr>
<td>Total Points</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**How well have you done on the activities?** Check your score against the rating scheme below:

- 25 - 30 = V. Good
- 21 - 24 = Good
- 15 - 20 = Fair
- 12 - 14 = Poor
- Below 11 = V. Poor
I/my partner rated my activities.
+ Delete that which is not applicable.

C. How do I rate my Learning from this Unit?

After working through this Unit I found that my knowledge of "Specifying Criteria for Objectives in the Classroom"

<table>
<thead>
<tr>
<th>Not increased at all</th>
<th>Increased a little</th>
<th>Increased a lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
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<td>5</td>
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<td>6</td>
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</tbody>
</table>

(Note: Circle the number under the appropriate response)
APPENDIX B3a

OBJEKTIF DAN PENILAIAN DI BILIK DARJAH

MODUL B 2

Objektif Di Bilik Darjah

Kriteria Untuk Menyatakan Objektif Khusus

Unit Belajar Sendiri

Disediakan oleh

Rohana Zubir

1981

Fakulti Pendidikan
Universiti Malaya

Inst. Teknologi Pendidikan
Universiti Surrey

Rohana Zubir 1981
UNIT B2: KRITERIA UNTUK MENULIS OBJEKTIF KHASUS II

OBJEKTIF:

Di akhir Unit anda patut boleh:

(i) sedar akan faedah menggunakan kriteria dalam penulisan objektif.

(ii) berhati-hati tentang penggunaan kriteria semasa menyatakan objektif.

(iii) menulis ayat-ayat objektif yang mengandungi perkataan-perkataan yang tidak kabur dan yang boleh diuji dengan mudah.
B2.1 FAEDAH MENGGUNA KRITERIA DALAM PENULISAN OBJEKTIF

Tidak boleh dinafikan bahawa ada baiknya menulis objektif khusus dengan terang. Cuba anda fikirkan bagaimana objektif berikut boleh memberi guru arahan dan memudahkan kerjanya disamping menggalakkan suasana bekerjasama di antara guru dan pelajar yang penting digalakkan dalam proses pengajaran dan pembelajaran.

OBJEKTIF:

'Dengan diberi satu set gambar yang sama dan masa 10 minit, pelajar akan bekerja tiga orang dalam sekumpulan untuk menyediakan senarai perkataan yang akan menerangkan gambar-gambar itu, menulis perkataan-perkataan itu pada kad yang disediakan dan memilih seorang ketua untuk menyampaikan perkataan-perkataan itu.'

Ini boleh dianggap satu objektif yang sesuai untuk dijadikan objektif keseluruhan pelajaran dan ia memberi arahan kepada pemilihan bahan, kaedah, media dan cara penilaian guru.

(a) BAHAN — PERBENDAHARAAN KATA, khususnya kata sifat.

(b) KAEDAH — (i) Guru akan bahagikan pelajar kepada kumpulan (3 orang dalam satu kumpulan) dan tiap-tiap kumpulan akan di-beri satu gambar untuk dipadankan dengan kata sifat yang diberi.

(ii) Pelajar dalam tiap-tiap kumpulan, akan memilih
seorang ketua untuk menyampaikan perkataan-perkataan itu.

(c) MEDIA - Satu set gambar dan kad kosong dan mungkin pelekat untuk melekatkan gambar ke atas kad.

(d) PENILAIAN - Objektif yang terang juga akan membantu guru menilai kejayaan sesuatu pelajaran - ini dapat dilihat dari kejayaan murid dalam pembelajaran yang akan mencerminkan objektif dan juga tujuan guru.

Oleh itu dari objektif kita diatas, guru dapat menilai perlakuan murid dengan menyediakan kriteria untuk peringkat perlakuan yang boleh diterima dan juga memerhatikan keadaan kerja di bilik darjah. Ia boleh lihat dari perlakuan kumpulan dan pemilihan kata sifat yang mereka fikirkan dan juga sejauh mana mereka boleh bekerja-sama - suatu perkara yang susah hendak dinilai disebabkan kelas yang mengandungi 40-50 pelajar tetapi satu usaha yang berguna dan patut dicuba.

B2.2 RUMUSAN:

Kita boleh rumuskan bahawa adalah penting menulis objektif dengan terang dan tidak kabur untuk sebab-sebab berikut:

(i) membantu guru dalam pemilihan bahan-bahan, kaedah dan media.

(ii) membantu guru menentukan sesuatu peringkat perlakuan yang boleh diterima untuk menguji perlakuan pelajar. Guru patut memberitahu pelajar had peringkat perlakuan yang boleh diterima supaya pelajar
dapat digalakkan bekerja menuju ke had itu dan mungkin selanjutnya.

(iii) membantu guru membuat penilaian yang sah mengenai kebolehan pelajar berdasarkan pada apa yang telah diajarkan dan dalam had perlakuan yang diterima.

Isu mengenai keesahan akan dibincangkan dalam satu kuliah.

'IBU BAPA MENGADU MEREKA TIDAK FAHAM AKAN MATEMATIKA BARU -- SAYA SENDIRI PUN TIDAK FAHAM JUGA!
B2.3 INGATAN TENTANG PENGUNAAN KRITERIA MAGER

Anda telah terlebih dahulu tadi, diperingatkan tentang isu menyatakan peringkat perlakuan yang boleh diterima seperti yang tersebut dalam ayat objektif ini.

Objektif:

'Apabila diberi 3 pilihan alat muzik (satu alat tiupan satu alat tali dan satu alat papan nada), pelajar akan memilih satu alat pilihan mereka dan memainnya dengan agak baik supaya di akhir penggal, mereka boleh memainkan sekurang-kurangnya 3 potongan muzik dengan baik.'

Perkataan 'agak baik', 'potongan muzik' dan 'baik' adalah frasa-frasa kabur. Adalah sukar untuk menilai sama ada pelajar memainkan alat muzik dengan 'agak baik'. Apakah kriteria yang boleh kita gunakan untuk menilai bahawa mereka bermain 'agak baik'?

Begitu juga, sukar untuk kita menilai perlakuan pelajar memain '3 potongan muzik' dengan 'baik' sebab muzik adalah disusun dari yang senang ('seruling bambu') kepada yang sukar ('Symphony Beethoven').

Satu lagi contoh yang klasik adalah yang selalu digunakan sebagai contoh iaitu 'supaya pelajar akan menghayati muzik'.

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Apakah kriteria yang akan kita gunakan untuk menentukan bahawa pelajar telah mencapai ke peringkat penghayatan muzik yang boleh diterima? Mager (m.s.15) mengatakan bahawa seseorang itu 'menghayati' muzik, apabila mereka menunjukkan perlakuan extrinsik yang berikut sebagai bukti:

"1. Pelajar akan menunjukkan tingkahlaku kegembiraan bila mendengar muzik Bach.

2. Pelajar akan membeli set hi-fi dan rekod yang berjumlah $500.

3. Pelajar akan menjawab dengan betul 95 soalan objektif mengenai sejarah muzik."


'Menghayati muzik' adalah termasuk dalam domain atau bidang afektif dan ianya sukar untuk dinilai. Perbincangan lanjut mengenai objektif afektif terkandung dalam Modul C.
Anda dinasihatkan menggunakan budi bicara anda semasa menggunakan kriteria objektif dan memikirkan implikasi manyatakan kriteria ke atas penilaian.

Kita mungkin dapat menilai perkembangan beberapa sifat intrinsik tetapi tidak pada yang lain. Misalnya, guru dalam contoh kita m.s. MB 2/2 dapat melihat wujudnya kerjasama di kalangan pelajar di darjahnnya. Ini dilakukan apabila guru berjalan keliling darjah. Guru akan dapat dengan cara begini menentukan bahawa pelajar menjalankan kegiatan mereka cara berbaik-baik dalam kumpulan kecil mereka.

Disebaliknya, mungkin sukar untuk menilai objektif yang menyatakan 'agar pelajar merasa gembira mempelajari Bahasa Melayu lama'. Inilah yang dimaksudkan apabila anda dinasihati menggunakan budi bicara anda semasa hendak menulis objektif yang tidak mudah hendak diperhati.
AKTIVITI 1

Arahan: Gugur atau tambahkan perkataan supaya tiap-tiap objektif mengikut, seberapa yang boleh, tiga kriteria yang formal untuk menyatakan objektif perlakuan. Sekiranya perlu, tulis semula objektif-objektif itu untuk memenuhi ketiga-tiga kriteria itu.

1. Pelajar akan faham akan nobel 'SI PINCANG'

2. Pelajar akan menulis dengan baik dalam Bahasa Malaysia.
3. Pelajar akan faham dengan betul akan pecahan.

4. Pelajar akan menyebut dan menggunakan peraturan teorem Phythagorean untuk menyelesaikan masalah.

5. Pelajar akan faham mengenai angin darat dan angin laut.


7. Pelajar boleh mengesan perkembangan Islam.


10. Pelajar akan dapat buat eksperimen No.6 dari buku panduan kimia.

PERHATIAN:

- Objektif yang anda tulis mungkin tidak sama dengan jawapan yang diberi.
- Anda mungkin hendak bincangkan kegiatan ini dengan rakan anda.
- Jawapan yang diberi bertujuan memberi anda garis panduan untuk mencapai jawapan yang boleh diterima.
JAWAPAN: AKTIVITI 1

1. Pelajar akan dapat menerangkan plot dan tujuan cerita 'SI PINCANG' dan menerangkan tentang tiga watak utama dalam nobel itu.

2. Pelajar boleh menulis satu karangan sepanjang 100 perkataan mengenai apa juga tajuk yang menarik tanpa membuat kesalahan tatabahasa dan tanda bacaan.

3. Pelajar akan dapat menyelesaikan sekurang-kurangnya lapan daripada sepuluh masalah dari mana-mana set masalah pecahan dipilih daripada ujian yang sama tarafnya untuk peringkat darjahnya.

4. Dengan menggunakan Theorem Phthagorean, pelajar akan dapat menyelesaikan 10 masalah secara lisan, dan juga 10 masalah yang dilukis. Mereka tidak dibenarkan membuat kesalahan dalam cara dan mereka hanya dibenarkan dua kesalahan dari dua puluh masalah yang diberi dalam ujian.

5. Pelajar akan dapat menerangkan dengan menggunakan satu siri gambarajah mengenai pembentukan angin darat dan laut.

6. Apabila diberi peta kosong Jawa, pelajar akan menggelapkan dengan pensel kawasan-kawasan yang paling padat kependudukannya dan mereka akan menerangkan sebab-sebab kepadatannya dengan menggunakan perkataan mereka sendiri.
JAWAPAN: AKTIVITI 1 (sambungan)


10. Apabila diberi arahan yang diterbitkan dalam buku panduan dan juga bahan-bahan yang perlu, pelajar akan dapat menggunakan bahan-bahan kimia yang ditentukan mengikut aturan yang diterangkan dan akan menulis daptannya dalam masa sejam.
RUJUKAN:


Beberapa contoh ayat-ayat objektif telah diambil atau dipetik dari buku/makalah berikut atau adalah sumbangan dari individu:

1. Mager.

2. Briggs.


5. Professor L.R.B. Elton, IET, Universiti Surrey.

6. Dr. J.K. Gilbert, IET, Universiti Surrey.

7. Encik A. Yaseen, IET, Universiti Surrey.

8. Professor Khoo Phon Sai, Faculty of Education, Universiti Malaya.
UJIAN SENDIRI:

1. Cari kriteria-kriteria yang tidak ada atau tidak terang dalam ayat-ayat objektif berikut:

<table>
<thead>
<tr>
<th>Contoh</th>
<th>Kriteria yang tiada atau tidak terang</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pelajar akan menamakan jenis ikan</td>
<td>(Syarat apa diberi) (bagaimana dibuat)</td>
</tr>
</tbody>
</table>

(i) Berdasarkan pada rencana pengarang yang berbalah, pelajar akan memberi komen mengenai rencana itu menggunakan perkataan sendiri dalam lebih kurang 100 perkataan.

(ii) Pelajar akan dapat mencampur warna dan menulis dapat menulis mereka dengan cermat ke dalam buku catitan.
(iii) Apabila diberi bentuk-bentuk yang berbeza, murid boleh memilih dan menggolongkan bentuk-bentuk ini mengikut bentuk yang sama.

(iv) Pelajar akan membanding dan membezakan.

(v) Dengan bantuan rajah, pelajar akan menerangkan prinsip permintaan dan bekal dalam ekonomi.

2. Kaji ayat-ayat objektif berikut. Tandakan 'X' pada ayat-ayat yang anda fikirkan kabur dan tandakan (✓) pada ayat yang terang.

(i) Dalam masa 10 minit, pelajar akan dapat menyenaraikan 10 tempat yang menarik di Malaysia Barat.

(ii) Pelajar akan dapat menulis karangan mengenai kebaikan tinggal di kawasan luar bandar.

(iii) Pelajar akan menerangkan mengenai Perang Candu.

(iv) Pelajar akan menunjukkan pengetahuan perspektif dengan melukis sekumpulan benda yang terletak di atas meja.

(v) Apabila diberi satu cerpen, pelajar akan membuat satu analisis tertulis mengenai tujuan pengarang.
TUGASAN 2

Menulis semula objektif khusus (Tugasan di Modul A) supaya mengikut seberapa yang boleh kepada ketiga-tiga kriteria.

ARAHAN: Lihat Tugasan pertama yang anda buat di Modul A.

Adakah anda fikir ayat-ayat objektif khusus anda mengikut kesemua ketiga-tiga kriteria.

Sekiranya tidak, tulis semula objektif seberapa yang boleh supaya memenuhi ketiga-tiga kriteria Mager tentang penulisan objektif khusus.

PERHATIAN:
Simpan satu salinan Tugasan ini untuk Fail anda. Anda mungkin memerlukannya lagi masa membuat kegiatan/tugasan di Unit-unit berikut.
**PROFIL UJIAN SENDIRI**

Bagaimana anda buat Ujian Sendiri?

Soalan 1

<table>
<thead>
<tr>
<th>i</th>
<th>Ketiga-tiga kriteria ada</th>
</tr>
</thead>
<tbody>
<tr>
<td>ii</td>
<td>buat apa bagaimana dibuat</td>
</tr>
<tr>
<td>iii</td>
<td>syarat yang diberi</td>
</tr>
<tr>
<td>iv</td>
<td>buat apa</td>
</tr>
<tr>
<td>v</td>
<td>syarat yang diberi</td>
</tr>
</tbody>
</table>

Jumlah Maksima  5

Jumlah Anda

Soalan 2

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>ii</td>
<td></td>
</tr>
<tr>
<td>iii</td>
<td></td>
</tr>
</tbody>
</table>

Jumlah  5  10

10} Cemerlang

9} Bagus.

8} Bolehkah anda semak soalan dan jawab lagi?

7} Jumpa Pengajar anda

6} 5  4  3  2  1  0

5  4  3  2  1  0

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APPENDIX B4

FEEDBACK SHEET FOR UNIT B1: Criteria for stating specific objectives.

Note: This information is purely for feedback and will not in any way be used for assessment.

1. Name (optional) Date

2. How long did you spend on this Unit?

3. Please grade the Unit as a whole on each of the following scales by circling one of the numbers from 1 to 5.

<table>
<thead>
<tr>
<th>Scale</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>totally irrelevant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>very boring</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>too superficial</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>very easy</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>badly explained</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>too few activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>too brief</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>very interesting</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>too detailed</td>
<td></td>
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<tr>
<td>very difficult</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>clearly explained</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>too many activities</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>too long</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

4. Please list any parts which took an excessively long time.

5. List any words, ideas, etc. that were not explained clearly enough.

6. Are there any of the 'Questions to bear in mind' that you feel you could still not attempt to answer? Please specify.
7. Please give any specific comments on the particular sections of the Unit:

Study Guide

Extracts

Set of Lecture Feedback Project Questionnaires

Observation Guide

8. Did you do all the activities? If you did, please say how useful you found them. If you did not, please say why you omitted some.

9. Did you do any follow up work on the Unit? Please give details.

10. Any other general comments.

THANK YOU. PLEASE RETURN THIS FORM
APPENDIX B5

QUESTIONNAIRE 3
(Monitoring Individualised Learning Materials) (Q3.MILM)

The purpose of this questionnaire is to find out your opinions on the Individualised Learning Materials. Your responses will be very useful and helpful for improving the self-study materials which you have used in this course.

Please fill in this questionnaire as thoughtfully as you can.

Your responses will be known only to me and NO ONE ELSE.

Thank you very much for your help.

Rohana Zubir

Institute for Educational Technology
University of Surrey
Guildford
Surrey
England

Faculty of Education
University of Malaya
Kuala Lumpur
Malaysia

NAME

DATE
For each of the questions you answer please comment or give reasons for your answers.

1. How useful was 'Unit 0' to you?
   Comments/Reasons

2. Each unit has been structured so as to contain a number of features.
   Please rate on a five point scale how you rate their features in general.

<table>
<thead>
<tr>
<th>Very useful</th>
<th>No use at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) The overview</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>(b) The list of objectives</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td></td>
<td>Very Useful</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>(c) The expository notes</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>(d) The activities</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>(e) The Key answers to the activities</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>(f) The assignment</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>(g) The self-test and answers</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>
(h) The abstracts (where applicable)

<table>
<thead>
<tr>
<th>Very Useful</th>
<th>No use at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

3 How did you rate the two lectures?

<table>
<thead>
<tr>
<th>Very Useful</th>
<th>No use at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

4 On the average how much time did you spend on each module?

- Less than 1 hour
- 1-3 hours
- 3-5 hours
- More than 5 hours

5 Please ring the letter for the module which took:

(a) The longest time: A B C D E F G

(b) The shortest time: A B C D E F G
6 Please ring the letter for the module which was:

(a) the hardest: A B C D E F G

(b) the easiest: A B C D E F G

7 Please state any units in any of the modules which you have found particularly good or poor, or any that you had particular difficulty with, and state reasons for this.

8 Have you any suggestions or comments you wish to make for the improvement of the materials?

Thank you very much for your co-operation and time.
Fig. 5.1 A Proposed Experimental Research Design Of Investigating IL And Lecturing At FEUM
1 Construction corollary. A person anticipates events by construing their replications.

2 Individuality corollary. Persons differ from each other in their construction of events.

3 Organization corollary. Each person characteristically evolves, for his convenience in anticipating events, a construction system embracing ordinal relationships between constructs.

4 Dichotomy corollary. A person's construction system is composed of a finite number of dichotomous constructs.

5 Choice corollary. A person chooses for himself that alternative in a dichotomized construct through which he anticipates the greater possibility for the elaboration of his system.

6 Range corollary. A construct is convenient for the anticipation of a finite range of events only.

7 Experience corollary. A person's construction system varies as he successively construes the replications of events.

8 Modulation corollary. The variation in a person's construction system is limited by the permeability of the constructs within whose ranges of convenience the variants lie.

9 Fragmentation corollary. A person may successively employ a variety of construction subsystems which are inferentially incompatible with each other.

10 Commonality corollary. To the extent that one person employs a construction of experience which is similar to that employed by another, his psychological processes are similar to those of the other person.

11 Sociality corollary. To the extent that one person construes the construction processes of another, he may play a role in a social process involving the other person [Kelly, 1955].
<table>
<thead>
<tr>
<th>Hari</th>
<th>Senin</th>
<th>Selasa</th>
<th>Rabu</th>
<th>Khamis</th>
<th>Jumaat</th>
<th>Sabtu</th>
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<td>SENI</td>
<td>BI</td>
<td>PEND.</td>
<td>BI</td>
<td>RPD</td>
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<td>5.20</td>
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<td>6.00</td>
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</tbody>
</table>

**APPENDIX**

**JABATAN/KUMPULAN**

**STAJAH/KESATUAN PELAJAR**

**MAKTAB PENGURUHAN ILMU KHAS**

**PENYARAH**

*Matapelajaran mulai dari 4.5.1981*

**PENGETUA/KETUA**

*Identification details redacted for privacy.*
# MAKTAB PERGURUAN ILMU KHAS
Jalan Cheras K.L.

## JABATAN / KUMPULAN
K5/81 (PIM)

<table>
<thead>
<tr>
<th>Waktu</th>
<th>Senin</th>
<th>Selasa</th>
<th>Rabu</th>
<th>Khamis</th>
<th>Jumaat</th>
<th>Sabtu</th>
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<td>I.H.</td>
<td>BI</td>
<td>PEND.</td>
<td>BI</td>
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<td>PEND.</td>
<td>BM</td>
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<tr>
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<td>I.H.</td>
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<td>BI</td>
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<tr>
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<td>6.20</td>
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</tbody>
</table>

## Pengetua / Ketua

---

Moral / UGAMA

TP

AKTIVITI KESATUAN PELAJAR

SEMBAHYANG

AKTIVITI KESATUAN PELAJAR

Pengetua / Ketua
### APPENDIX D3

#### Table 7:5  Sex Differences And Academic Achievements Of Group 05 Students In STTI

| SEX 1 = Male | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | S11 | S12 | S13 | S14 | S15 | S16 | S17 | S18 | S19 | S20 | S21 | S22 | S23 | S24 | S25 |
|--------------|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2 = Female   | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 2  | 2  | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   |

| Malaysian Certificate of Education (MSC) | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | S11 | S12 | S13 | S14 | S15 | S16 | S17 | S18 | S19 | S20 | S21 | S22 | S23 | S24 | S25 |
| Grades 1   | 1  | 2  | 2  | 2  | 2  | 1  | 3  | 3  | 2  | 2   | 2   | 1   | 2   | 2   | 2   | 2   | 2   | 3   | 1   | 2   | 3   | 2   | 1   | 1   |
| Grades 2   | 1  | 2  | 2  | 2  | 2  | 1  | 3  | 3  | 2  | 2   | 2   | 1   | 2   | 2   | 2   | 2   | 2   | 3   | 1   | 2   | 3   | 2   | 1   | 1   |
| Grades 3   | 1  | 2  | 2  | 2  | 2  | 1  | 3  | 3  | 2  | 2   | 2   | 1   | 2   | 2   | 2   | 2   | 2   | 3   | 1   | 2   | 3   | 2   | 1   | 1   |

| Higher School Certificate: (HSC) | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | S11 | S12 | S13 | S14 | S15 | S16 | S17 | S18 | S19 | S20 | S21 | S22 | S23 | S24 | S25 |
| 4 = Full Cert.   | 6  | 5  | 6  | 6  | 6  | 6  | 6  | 6  | 4  | 5   | 6   | 6   | 4   | 6   | 6   | 6   | 5   | 4   | 5   | 4   | 4   | 5   | 5   | 4   |
| 5 = Partial      | 4  | 5  | 6  | 6  | 6  | 6  | 6  | 6  | 4  | 5   | 6   | 6   | 4   | 6   | 6   | 6   | 5   | 4   | 5   | 4   | 4   | 5   | 5   | 4   |
| 6 = No HSC       | 4  | 5  | 6  | 6  | 6  | 6  | 6  | 6  | 4  | 5   | 6   | 6   | 4   | 6   | 6   | 6   | 5   | 4   | 5   | 4   | 4   | 5   | 5   | 4   |

| STTI Year 1 Results: | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | S11 | S12 | S13 | S14 | S15 | S16 | S17 | S18 | S19 | S20 | S21 | S22 | S23 | S24 | S25 |
| 40-49 = 5          | 6  | 7  | 7  | 7  | 6  | 6  | 5  | 7  | 7  | 7   | 7   | 5   | 7   | 5   | 7   | 7   | 5   | 7   | 7   | 7   | 7   | 7   | 7   | 6   |
| 50-59 = 6          |    |    |    |    |    |    |    |    |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 60-69 = 7          |    |    |    |    |    |    |    |    |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
INDIVIDUALISED LEARNING

GENERAL QUESTIONNAIRE (2)

These questions are designed to find your opinions on certain aspects of Individualised Learning which in some instances are being compared with the lectures.

Please fill in the questionnaire thoughtfully and as accurately as you can.

Your responses will be known only to me and NO ONE ELSE.

Thank you very much for your help.

Rohana Zubir
Institute for Educational Technology
University of Surrey
Guildford
England

Faculty of Education
University of Malaya
Kuala Lumpur
Malaysia
For each of the questions please circle the appropriate answer. Then please comment or give reasons for your responses.

Questions

1. Can more knowledge be covered in
   A. lectures
   B. individualised learning

2. Can you understand the subject matter better in
   A. individualised learning
   B. lectures

Comments/Reasons
(If there isn't enough space here please continue overleaf and write the question number if you do.)
<table>
<thead>
<tr>
<th>Questions</th>
<th>Comments/Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Which method of teaching can stimulate you further to</td>
<td></td>
</tr>
<tr>
<td>read on the subject?</td>
<td></td>
</tr>
<tr>
<td>A Lectures</td>
<td></td>
</tr>
<tr>
<td>B Individualised Learning</td>
<td></td>
</tr>
<tr>
<td>4 Do you retain the subject matter better in</td>
<td></td>
</tr>
<tr>
<td>A Individualised Learning</td>
<td></td>
</tr>
<tr>
<td>B Lectures?</td>
<td></td>
</tr>
<tr>
<td>5 Do you work harder in</td>
<td></td>
</tr>
<tr>
<td>A Lectures</td>
<td></td>
</tr>
<tr>
<td>B Individualised Learning</td>
<td></td>
</tr>
</tbody>
</table>
Questions

6 Do you work more efficiently in
   A Individualised Learning
   B Lectures?

7 Which is more interesting for you
   A Individualised Learning
   B Lectures?

8 Have you found more contact with your tutor /lecturer in
   A Lectures plus tutorial
   B Individualised Learning plus tutorials?
Please indicate your agreement with these statements by circling the appropriate number and please comment or give reasons for your answer.

<table>
<thead>
<tr>
<th>DO YOU AGREE THAT</th>
<th>Agree Completely</th>
<th>Agree Somewhat</th>
<th>Neither agree nor disagree</th>
<th>Disagree somewhat</th>
<th>Completely disagree</th>
<th>COMMENTS/REASONS (Please use the space overleaf if necessary)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 In lectures you can pile up work till a later time?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>10 Individualised Learning is like 'spoon-feeding'?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>11 Learning through individualised learning is like reading lecture notes?</td>
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</tr>
</tbody>
</table>
12 Compared with the average for other courses you take, does this course require

Much more of your time? 1 2 3 4 5

Much less of your time?

13 How much time did you spend on this course over the past week, not including class time?

Less than 1-3 3-5 more than
1 hour hours hours 5 Hours

16 Was this more or less than a typical week (learning by lecture plus tutorials)

Much More Same Less Much more

less
15 What advantages and/or disadvantages have you found in the fact that you can pace your own work?

16 Have you missed the face-to-face contact with the lecturer in a lecture course? Please explain your answer.

17 Have you found working with a partner

<table>
<thead>
<tr>
<th></th>
<th>Very</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>(a)</td>
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<td>enjoyable</td>
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<td>(b)</td>
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<td>helpful</td>
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<td>worthwhile and worth continuing</td>
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<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

REASONS/COMMENTS
18 How do you feel about being given deadlines to complete your instructional modules? Please explain your answer.

19 Do these deadlines provide sufficient compulsion in the course for you?
Too much  too much  right  too little
slightly  too much  about  slightly  too Little
slightly  too  Little

20 Do you learn better by listening than by reading?
Please explain your answer.
21. Do you prefer to work alone or in groups? Please explain your answer.

22. Given the choice to study this course again by:
   (a) Individualised Learning
   or
   (b) Lecture
   what would you choose?

   a  [ ]  b  [ ]

THANK YOU VERY MUCH FOR YOUR CO-OPERATION AND TIME.
APPENDIX E2

List Of Categories Of Students' Open Responses

**Note:** (i) Notation (a) to (j) represent students' responses in favour of IL
(ii) Notation (p) to (z) represent students' responses in favour of the LECTURE

INDIVIDUALISED LEARNING

**I METHOD:**
(a) More efficient
(b) Newness of method
(c) More challenging
(d) More attractive

**II CONTENT:**
(a) Detail explanation; material sequenced and clear with instructions easy to understand.
(b) Activities/Assignments; stimulate interest, promote retention.
(c) Enables reading in depth, repetitive reading, reading for understanding.
(d) Promote discussion; problems in IL identified for discussion in tutorials.
(e) Deadline to meet.
(f) Helpful near examination rush.

**III LECTURER ROLE AND ATTRIBUTES:**

Tutorials at a personal level or with a few people.

**IV STUDENT LEARNING:**
(a) Flexibility in learning; time and place and mood, develops individuality in learning style.
(b) Regulate study habit, repetitive and reflective reading for review and understanding, systematic process in studying; time for reflection.
(c) Concentration and attention on study, sharpen thinking.
(d) Greater self-effort; individual initiative, active involvement through self-effort.
(e) Facilitates discussion with friends at tutorials.
(f) Develops interests.
(g) Reduces anxiety eg fear of shame.
(h) Care and self-discipline.
(j) Used to studying alone.

cont'd
V STUDENT-LECTURER CONTACT:

VI STUDENT-STUDENT-LECTURER CONTACT:

VII CONDITIONAL RESPONSE:

(a) If materials are clear; if there are improvements in materials.
(b) If students are hardworking, active and independent.
(c) If tutorials are held.
(d) If more stimulating questions are asked.
(e) Depends on subject matter.

VIII COMPARISON WITH LECTURE:

(a) Lecture concerned with getting down notes rather than understanding waste of time, pay less attention, does not stimulate thinking.
(b) Stress on examinations in lectures.
(c) Lack contact with lecturers in lecture situation.
(d) Lecture is monotonous, boring.
(e) Students who are hardworking can work efficiently in both IL and lecture.

THE LECTURE

I METHOD:

(p) Interesting
(q) Newness of IL method

II CONTENT:

(p) Lecture as guideline
(q) Knowledge is current
(r) Knowledge is immediate
(s) More facts in same time
(t) Helps to prepare assignments and preparatory work given by lecturer
(u) Lecture notes are not complete
III LECTURER ROLE AND ATTRIBUTES:

(p) Lecturer provides explanation and guidelines.
(q) Lecturer has extensive knowledge, varied ideas.
(r) Lecturer's presentation interesting, motivates interest.
(s) Help on the spot, face-to-face contact.
(t) Approachability in lecture.

IV STUDENT-LEARNING:

(p) Can remember better by listening, recalling spoken words is more stimulating.
(q) Study habits; avoids or dislikes reading; lecture does not require much time outside lecture hours; used to being spoonfed; there is somebody to push.
(r) More efficient within given time, can devote full attention.
(s) Use senses from eyes to ears.
(t) Lecture oriented to examinations.
(u) Competition among peers.
(v) Lack motivation.
(w) Can leave to last minute.
(x) Used to lectures; IL new thing.

V STUDENT-LECTURER CONTACT:

(p) More knowledge through examples and question from students.
(q) Dialogue between student and lecturer; can interact.

VI STUDENT-STUDENT-LECTURER CONTACT:

(p) Discussion among students and lecturer.

VII CONDITIONAL RESPONSES:

(p) If lectures presented are interesting and clear/depends on lecturer.
VIII COMPARISON WITH IL:

(p) Immediate exposure to new knowledge.
(q) IL requires more time outside lecture time.
(r) Lecture time is fixed.
(s) Students given guidance; in IL students have to use self-effort.
(t) IL does not help understanding.
(u) Contact with lecturer in lectures not in IL.
(v) Causes laziness.
(w) Reading is boring.
(x) More attention needed in IL for better understanding.
(y) Can remember better in listening to lecture than reading IL materials.
APPENDIX E3

Specimen Of A Letter And Proformas Sent To Three Judges In Kuala Lumpur (overleaf)

Appendix E3 contains three specimens:

I  A specimen of a letter sent to Malaysia to each of the three judges. The letter is self-explanatory.

II  Two lists:
   'X' represents responses pertaining to the lecture: with main categories and subcategories identified by notations a → j.
   'Y' represents responses pertaining to IL: with main categories and subcategories identified by notations p → z.

III  A specimen of a Proforma which judges used to categorise the open responses.

These were all sent to the three judges.

For the results please see Table 8.1, Appendix E4 for interjudge agreement.
Dear,

Further to my personal note to you, I have here a description of the contents of this envelope and the process which you might use in categorizing the respective students' responses.

1. In this large envelope A you will find two medium-sized envelopes marked B and C.

2. In each of B and C, there are 3 smaller envelopes containing 3 students' responses to three questions in my questionnaire. The responses are either in favour of individualised learning (I) or the lecture.

I have sorted out all the responses in favour of I from those in favour of the lecture and put them into the separate small envelopes thus:

(a) all responses in favour of I in envelopes D E F
(b) all responses in favour of the lecture in envelopes G H I

3. I have prepared 2 proforma 'XX' and 'YY'. An example of proforma 'YY' is given overleaf.
### Example of Proforma 'YY'

<table>
<thead>
<tr>
<th>Question No.</th>
<th>Proforma YY</th>
<th>Method</th>
<th>Content</th>
<th>Lecture Release</th>
<th>Student Learning</th>
<th>Y</th>
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</tbody>
</table>

**Example 2**

**a** = The question number. In this case you will be categorising 3 questions, so you will use 3 proforma 'YY's' (and 3 'XX's').

**b** = Proforma for categorising all responses in favour of lecture.

**c** = Main categories. Please see list of categories.

**d** = Response slip numbers.

**e**.g. 25 08 @ 25 @

Response either 1 if no.
Question number
Group member
Group
Ignore this number.

Only 2 numbers are relevant for your purpose.
1e. 'group' & 'group number'. The last 2 numbers are useful only as checks. Please ignore the first 5 the five numbers if it appears on the response slip.
TO USE PROFORMA 'YY' FOR CATEGORIZING RESPONSES

IN FAVOUR OF THE LECTURE

Using proforma 'YY', please categorize all responses in favour of lecture in the appropriate main category columns by first selecting the main category and then, by selecting the most accurate sub-categories, please put the appropriate alphabets under the main category columns you have selected. You might like to put two alphabets in any one column.

EXAMPLE 3: A response slip on question 7

because in lectures we can remember better. This involves the behaviour and actions of the lecturer that is very important compared to learning by oneself. (T)

This response shows lecture's presentation (which I think is very important) and the response seems to hint on ability to 'remember better' as a result of lecture's presentation (which I would put as being under sub-category 'R') (please see category list 'R').

The entry on to proforma 'YY' would appear as in example 2 (*), on page 2.

5. Please use the same process for categorizing all responses in favour of Lecture.

6. To make it easier for you I have listed all the response slips in logical order on the left hand side of the proformas.
Please put all response slips back in the original envelopes together with the performas which you have completed and send them to me via Prof. Lewis Elton.

I am very grateful for all the help you have given me.

Hope to hear from you soon.

Yours gratefully,

(Rothna Zubir)
**SPECIMEN II - LIST 'X'**

LIST 'X' TO BE USED FOR CATEGORISING RESPONSES TO INDIVIDUALISED LEARNING (IL) ON PROFORMA 'XX'

<table>
<thead>
<tr>
<th>CATEGORIES</th>
<th>EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>I METHOD</td>
<td></td>
</tr>
<tr>
<td>(a) more efficient</td>
<td>&quot;more efficient but not necessarily more effective, can get boring&quot;</td>
</tr>
<tr>
<td>(b) newness of the method</td>
<td>&quot;this is completely something new after 13 years of studying&quot;</td>
</tr>
<tr>
<td>(c) more challenging</td>
<td>&quot;for a change in everyday life with guides and so forth will be more challenging and adventurous&quot;</td>
</tr>
<tr>
<td>(d) attractive</td>
<td>&quot;attractive but needs lecturer's cooperation&quot;</td>
</tr>
<tr>
<td>II CONTENT</td>
<td></td>
</tr>
<tr>
<td>(a) detail explanation; materials sequenced and clear with instructions; materials are provided - easy to understand</td>
<td>because information acquired is complete and systematic (T)</td>
</tr>
<tr>
<td>(b) activities and assignments to do - stimulate interest; promote retention</td>
<td>&quot;it is more systematic and easy to understand. Only when we don't understand we will see the lecturer&quot;</td>
</tr>
<tr>
<td>(c) enables reading in depth; enables repetitive reading in depth; compels reading for understanding</td>
<td>&quot;when doing the assignments one has applied what one has learnt this too helps to retain the subject matter&quot;</td>
</tr>
<tr>
<td>(d) promotes discussion; problems in IL identified for discussion in tutorials</td>
<td>opportunity to read repeatedly if not understood. This gives opportunity for deeper understanding. (T)</td>
</tr>
<tr>
<td>(e) reinforces what is learned from lecture</td>
<td>Learning from individualised learning materials forces me to learn. (T)</td>
</tr>
<tr>
<td>(f) deadline to meet</td>
<td>learning by oneself can enhance our learning eg by discussions. (T)</td>
</tr>
<tr>
<td>(g) helpful near exam rush; more reading</td>
<td>helps to reenforce what is learned from lecture (T)</td>
</tr>
<tr>
<td></td>
<td>&quot;deadline placed on us to finish the modules&quot;</td>
</tr>
<tr>
<td></td>
<td>because individualised learning materials help us. We are rushed when near the exams. (T)</td>
</tr>
</tbody>
</table>

**NOTE:** Verbatim quotes are within quotation marks. Translated quotes are not within quotation marks and are identified by (T) at the end of the statements.
III LECTURER ROLE AND ATTRIBUTES

(a) tutorials on a personal level or with a few people

"More contact in B because I find that I can discuss better with my tutor/lecturer"

"In this one, I went to see the tutor personally"

IV STUDENT LEARNING

(a) flexibility in learning - time and place; and mood; develops individuality in learning style

"I work harder in B because I'm doing the learning at my own pace and time" Because this makes it easier for us. We can find a suitable place. It's noisy during lectures. (T)

(b) regulate study habit; repetitive and reflective reading for understanding, systematic process in studying; time for reflection can repeat if materials are not understood; time to read and review

At first the individualised learning materials are read. When facts are not clear then we discuss with lecturer (T) If we can't remember we can refer back to the module. (T)

(c) devote concentration and attention on study

more concentration and calm in learning by oneself (T)
I have more concentration when learning by oneself because during lectures our mind is disturbed by other matters (T)

there is self-effort for achievement (T)
"because you are more actively involved"
"working through IL will make one use their initiative in order to get what they want" because I can discuss with friends all the problems (T)
"the subject is written down for you to read and help - as it can be discuss during tutorial"

(d) greater self-effort; individual initiative + attention to learning; active involvement through self-effort

"Our interest is sustained rather than following some lectures which I don't enjoy"

(induced to find answers by ourselves because lecturers will later question us (T)
"because of the teacher ask questions during this period and if we can't answer we may get shy or feel shame" can sharpen our thinking in finding the answers to certain problems. (T)

(e) facilitates discussion with friends and at tutorials

(f) IL develops interest

(g) to reduce anxiety eg. fear of shame

(h) sharpens and tests one's thinking
(i) used to studying alone
(k) self-discipline

V STUDENT-LECTURER CONTACT
Note: (so far all responses in favour of IL have not alluded to this aspect)

VI STUDENT-STUDENT-LECTURER CONTACT
(similarly for this)

VII CONDITIONAL RESPONSES

(a) if materials are clear; if statements in materials are easy to understand; if there are improvements in materials
(b) if students are hardworking, active and independent
(c) if more time is spent on it; if subject matter has been understood
(d) if tutorials are held
(e) if more stimulating questions are asked
(f) if in the mood and try self-test

VIII COMPARISON WITH LECTURE

(a) lecture concerned with getting down notes than understanding; can understand and remember better in lectures what is important is copying notes
(b) lecture hour waste of time when not taught properly; in lectures spend time to copy notes, in IL copy content straight away
(c) stress on examinations in lectures
(d) lack contact with lecturers in lectures
(e) lecture is monotonous, boring

as a change on condition that the explanation in the modules is clear and easy to understand (T)

"we read more. By given lectures we usually just write without sometimes understanding or knowing what we write"

involved too much time and more difficult to understand (T)

lectures only provide the guidelines. Stress is given usually to topics which will come out in the exams only (T)

during lectures the lecturer does not have contact with the students (T)

"sometimes lecturers are very boring"
(f) pay less attention in lectures

(g) does not help stimulate thinking

(h) students who are hard-working can work efficiently in both IL and lecture

(i) learned a lot from this course, would not that much were course conducted in lecture style

9 OTHER

sometimes not much concentration is applied when listening to lectures (T)

lectures alone does not help to stimulate the thinking (T)

"this is a relative question because it is all depend on the individual be it students or lecturers. If the students can work harder they will be more efficient as A, so does for lectures, but I choose A (IL)"

eg. "its convenient to me"
    "because of language"
SPECIMAN II — LIST "Y"

LIST "Y" TO BE USED FOR CATEGORIZING RESPONSES TO LECTURE ON PROFORMA "YY"

<table>
<thead>
<tr>
<th>CATEGORIES</th>
<th>EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>I METHOD</td>
<td>I prefer lecture because it has many advantages considering it is more interesting (T)</td>
</tr>
<tr>
<td>(p) interesting</td>
<td></td>
</tr>
<tr>
<td>(g) newness of IL method</td>
<td>&quot;because IL is a new method and I haven't seen one being practised&quot;</td>
</tr>
<tr>
<td>II CONTENT</td>
<td>lectures as basic notes and IL as additional notes</td>
</tr>
<tr>
<td>(p) lecture as guideline; provides overall information for further work</td>
<td>additional information can be given by the lecturer where he feels it necessary to do so (T)</td>
</tr>
<tr>
<td>(q) knowledge is current</td>
<td>&quot;lectures can save more time. Facts are given immediately more facts can be given by verbal communication than reading in the same time (T)</td>
</tr>
<tr>
<td>(x) knowledge is immediate</td>
<td></td>
</tr>
<tr>
<td>(s) more facts in same time</td>
<td></td>
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<tr>
<td>(t) lecturer determines content</td>
<td>In lectures, lecturer has determined the most relevant content for his students (T)</td>
</tr>
<tr>
<td>(u) helps to prepare assignments; assignments and preparatory work given by lecturer</td>
<td>&quot;questions may be thrown to me on the following lecture&quot; &quot;we are graded for all the assignments&quot;</td>
</tr>
<tr>
<td>(v) lecture notes are not complete</td>
<td>&quot;lectures are very brief&quot; &quot;a lot of reading to fill the framework given in the lectures&quot;</td>
</tr>
<tr>
<td>III LECTURER ROSE AND ATTRIBUTES</td>
<td>because we can get clear explanation rather than we read ourselves (T)</td>
</tr>
<tr>
<td>(p) lecturer provides explanation; lecturer can explain and guide; lecturer's exposition</td>
<td>because lecturers have extensive knowledge about a particular field chosen. On the other hand, learning by oneself requires self determination to use self-effort (T)</td>
</tr>
<tr>
<td>(g) lecturer possesses extensive knowledge; lecturer has varied ideas</td>
<td>&quot;an effective lecturer can convey the content more vividly...&quot;</td>
</tr>
<tr>
<td>(r) presentation is interesting; presentation motivates interest</td>
<td></td>
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</tbody>
</table>
(s) lecturer gives guidance; help from lecturer on the spot - can ask questions, opportunity for consultation with lecturer, direct face-to-face contact with the lecturer (T)

(t) approachability in lecture

IV STUDENT LEARNING

(p) can remember better by listening; knowledge through listening; recalling spoken words is more stimulating

(q) study habits; avoids reading; hates reading; lack interest in reading; reluctant to digest IL materials

(r) used to lectures; lazy to study a new thing

(s) little time for IL; lecture does not require much time outside lecture hours

(t) can devote full attention at lecture time

(u) habit of being spoonfed; brought up to lean on teachers

(v) oriented to examinations

(w) there is somebody to push

(x) competition among peers

(y) never miss lectures

(z) more tuned to sound

pp lack motivation

qq can leave to last minute

lessons can progress more quickly and questions can be asked on the spot (T) 

"students are familiar with the lecturers, their mannerisms etc. and therefore are more ready to approach them" 

no need to pay attention to books only need to listen all the lecturer's explanation and try to understand it (T)

"I hate reading"

because of our habit which is conditioned from tradition (T)

"within the limited time given one tends to concentrate more as a result efficiency is increased"

more interesting because from before have been nurtured to learn from teachers so more interest for the lecture lectures are more important. All the lessons given are regarded as important for passing the exams (T)

"more compulsion to push a certain individual to work harder"
V STUDENT-LECTURER CONTACT
(p) more knowledge through examples and questions from students
(q) dialogue between student and lecturer - a two-way process; can interact with lecturer

VI STUDENT-STUDENT-LECTURER CONTACT
Note: so far there has not been any response to this. You may come across some and may wish to add your own subcategories below
(r)

VII CONDITIONAL RESPONSES
(p) if lectures presented are interesting; if lecturers do not ramble away; if lectures are clear

VIII COMPARISON WITH IL
(p) immediate exposure to new knowledge in lectures not in IL
(q) IL needs more time; knowledge acquired easier and faster through lectures
(r) lecture time is fixed not IL
(s) students given guidance in IL through self-effort

by listening to lectures, we get new information and experience which we have not learned. However with IL we do not know the subject matter (T) "yes, because reading needs more time to understand because it needs more time for reading and understanding. Whereas, by listening we can grasp faster (T)

"because lecture time is fixed and we don't get away from it but IL is flexible"

students are guided and can make own reference. On the other hand through IL it depends on own initiative (T)
(t) IL not help understanding

"it won't make you understand very much in IL"

(u) contact with lecturer; in lectures can still meet lecturer not in IL; IL does not give ample time for students to ask

"IL does not give ample time for students to ask"

(v) IL causes laziness because everything is provided

IL sometimes make us lazy because everything is given there (T)

(w) reading is boring

because reading again is boring (T)

(x) in IL more attention is needed for better understanding

(y) IL adds to lecture

(z) listening in lecture can remember better than reading

"listening - audio memory is more lasting; but of course reading in depth can also make us remember more because it is through our conscious self-effort"
<table>
<thead>
<tr>
<th>RESPONSE SLIPS NUMBER</th>
<th>1</th>
<th>2</th>
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**Question No. 6**

**Proforma XX**

**Individualised Learning**

**Categories**

- Method
- Content
- Lecturer Attributes
- Student Learning
- Study-Lecturer Contact
- Conditional Responses
- Comparison with Lecture
- Other

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(Rohan Zubir)
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**Percentage:** 88.3%
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*Depends on subject matter*
### Table 8.1 Percentage Level Of Interjudge Agreement (Before adjustment)

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<td>7</td>
<td>90.0%</td>
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<td>8</td>
<td>86.4%</td>
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<td>77.8%</td>
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<td>83.3%</td>
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Table 8.7 Percentage Response To IL And LE By Four Groups Of Students On Knowledge, Understanding And Retention

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<thead>
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<th>STTI2</th>
<th>FEUM1</th>
<th>FEUM2</th>
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<tr>
<td></td>
<td>N = (25)</td>
<td>N = (77)</td>
<td>N = (38)</td>
<td>N = (85)</td>
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<td>Q1 Method that can cover more knowledge</td>
<td>IL LE</td>
<td>IL LE</td>
<td>IL LE</td>
<td>IL LE</td>
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<tr>
<td></td>
<td>68% 28%</td>
<td>43% 56%</td>
<td>47% 42%</td>
<td>68% 28%</td>
</tr>
<tr>
<td></td>
<td>(17) (7)</td>
<td>(33) (43)</td>
<td>(16) (18)</td>
<td>(58) (24)</td>
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<tr>
<td>Q2 Method that can help better understanding</td>
<td>IL LE</td>
<td>IL LE</td>
<td>IL LE</td>
<td>IL LE</td>
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<tr>
<td></td>
<td>44% 52%</td>
<td>14% 84%</td>
<td>55% 28%</td>
<td>56% 38%</td>
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<tr>
<td>Q3 Method that can help better retention</td>
<td>IL LE</td>
<td>IL LE</td>
<td>IL LE</td>
<td>IL LE</td>
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<tr>
<td></td>
<td>68% 24%</td>
<td>35% 62%</td>
<td>55% 31%</td>
<td>67% 28%</td>
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<tr>
<td></td>
<td>(17) (6)</td>
<td>(27) (48)</td>
<td>(21) (12)</td>
<td>(57) (24)</td>
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</tbody>
</table>

Notes:

1. Higher proportion of students in STTI1 compared to STTI2 perceived IL to cover more knowledge.

2. All groups at STTI perceived that they could understand better in the lecture. Higher proportion of students in FEUM perceived that they could understand better through IL.

3. Higher percentage of STTI1 and FEUM1 and 2 perceived that IL can help better retention.
01:59:06 (Talks about how he is guided by an Indian leader etc. Work filling gas tank to pay fees; aspires to go to university.)

02:05:4; I: Oh you must tell me more about your experiences, now let's go back to these two methods (ngaa OK) erm as I said you have been exposed to the lecture method for years and although you said something new because you've been doing course by correspondence and you passed through that err err I come back to that later remind me but in these two methods of teaching have you found that you approached your study differently by doing it in this err the two approaches.

03:06:06 ya, I when I do the module I read it and it I definitely won't understand in one shot you know in one glance I definitely won't understand and certain words because I before I was good in English but now I'm getting my English is getting worse because I'm too much influenced by Bahasa so I've to take my dictionary and refer to certain words that will take my time mostly erm and I find that this method is very good unless we have self-discipline you know sit down and really work at it and the time for it and. I like this method I think if we were to follow this err self-study method for these lectures all lectures cancel all lectures put self-study in it and of course lecturers should be know what you're doing you know erm should have be alert with this things whether they are moving fast or not erm I think this if we were to follow this course in six months time two years course will be over (I; oh only six months) because we are not doing much in this college Psychology - most of the lecturers lectures we escape (I: What do you mean?) I mean escape that means err too many other activities come in during lecture hours say like Convocation (I: When you do miss these lectures in Psychology what do you do?) Erm not that we are missing you know the lecturers may not be there (I: Ya, are they not made up sometime?) Ah ya after that they try to make it uplah but then you see if you to really err study giving notes and all that the students will really they have erm they have to study you know if this is the method because since it became the lecturer the lecturer's method so they just follow if it had been (I: You call that the lecturer's method) ya Lecturer's method (I: (laughs) why is that?) because these lecturers have their own way of teaching you know they just one lecturer will come rad dad daddad dad dad they will go like a train another lecturer may come like teaching is a school, primary school or secondary school (I: how's that?) they'll teach bit by bit and they
will be too much tolerant to the students erm feelings and they way ah yah I'm very say tired but then these students have their own way tactics to escape these kind of things they may say err 'teacher, teacher, I don't know that lah can you explain me lah but actually they know see they just want to waste their time you know keep the time going on to finish that period nga then they go off so this kind of things happen especially in my class.

04:09: I: What do you think, what do you feel are important what do you feel or how do you feel think the lectures should be conducted.

05:09:06 Lectures should be conducted in such a way that the lecturers shouldn't give much attention to what people say. In fact colleges are meant for lecturers to provide enough information of course but not all information and the students must follow whatever the lecturer say must take it must follow there should be in such a situation brought up in MPIK well because most the students tend to just escape and the lecturers on the other hand they don't realise that they have different methods of teaching each lecturer they teach by their own experience you know and they'll be one as I've told you like a computer going on but another one will be going on like a secondary school teacher you see they do not have a standardised way of teaching (I: you think they should have a standardised way?) They should have especially in colleges (I: What would you say that standardised way should be) Err should be like this they come into class students wish then straight away move into the topic teach that's all over then if there is any question ask the students to come and see them personally (I: Oh not in the class) not in the class because class time is very limited and we have many activities going on.

06:10: I: How important is it for them to give very full lecture notes?

07: 06: Erm not very important err maybe we can say that half of the time during lecture hours they lecture and the other half they may err berkai you know 'kait' kan apa punya ada dengan this err the surroundings our everyday life that's what the lecturer's method should be and because the students will also feel what the lecturer is telling us are relevant and they may ah then the lecturer may say OK you go and do this passage you refer to this book do the required reference ask them to do an assignment that will be much more err what shall I say they gain some information from the lectures and also they do work on their own very seldom people will make use of this library in MPIK very seldom the only time you can see is a few weeks before the exam when they go and rush for the reference books and the past years questions. They don't gain much.
Dear Students,

I am carrying out a research project on teaching methods and student learning in teacher training colleges.

One aim of the research is to find out the types of teaching methods by which you have been taught and whether or not you consider the different methods satisfactory for your learning.

I need your full co-operation to be able to carry out the research well.

I would be very grateful if you would respond to the questionnaire attached as ACCURATELY as you can.

Your responses will only be known to me and NO ONE ELSE.

Thank you very much.

Yours sincerely,

Rohana Zubir

Inst. for Educ. Technology
University of Surrey
GUILDFORD

Faculty of Education
University of Malaya
KUALA LUMPUR
Teaching and Learning in a teacher training college - a background survey.

Your Name

Course

Year

Date

Please answer all questions as ACCURATELY as you can. Thank you.

1. In what different ways have you been taught on your course?
   I have listed some ways. Please tick (√) those which you have had experience with and add other ways to the list if necessary.

   Please indicate how much experience you think you have had in each of these methods of teaching by ticking the appropriate column.

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<th>A little</th>
<th>Not at all</th>
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<tr>
<td>(b) Tutorial</td>
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2. Have you any questions you want to ask related to the items on the list, or comments you wish to make regarding any of them?

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3 How useful have you found each of the ways that you identified in helping you to learn? Please tick the appropriate column in (ii). In column (iii) please explain where necessary, your reasons for your answer.

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<td>Reasons for my answer. (If you need more space please write overleaf. Please write the item number down if you do).</td>
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<td>(e) Project</td>
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Do you feel that there is adequate use (in terms of the amount of time used in teaching) of any of the ways that you have identified in question 1? Please add further comments in the 'comments column' if necessary.

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<tr>
<td>(f) Small group teaching</td>
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</table>

PLEASE CONTINUE OVERLEAF
5  Are there other methods of teaching which you would like to see added to the present teaching methods?

YES ( )  NO ( )

If yes, can you please list the methods below.

Thank you very much for your kind co-operation and time.
### APPENDIX E8

Table 8.9 Students' (Group 05 x 25) Experience In Using (Being Taught By) Teaching Methods

<table>
<thead>
<tr>
<th>Responses correspond: 1 = Much; 2 = A little; 3 = Not at all; 9 = No response</th>
</tr>
</thead>
</table>

| Abbreviations: S1, S2 etc. = Student No. 1, Student No. 2 etc. |

| Teaching Methods                | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | S11 | S12 | S13 | S14 | S15 | S16 | S17 | S18 | S19 | S20 | S21 | S22 | S23 | S24 | S25 |
|---------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1. Lecture                      | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  |
| 2. Tutorial                     | 2  | 2  | 2  | 1  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  |
| 3. Micro Teaching               | 3  | 2  | 3  | 2  | 2  | 2  | 3  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  |
| 4. Peer Teaching                | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 3  | 2  | 3  | 3  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  |
| 5. Project                      | 2  | 1  | 1  | 2  | 1  | 2  | 2  | 2  | 1  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  |
| 6. Small Group Teaching         | 2  | 3  | 2  | 3  | 2  | 2  | 2  | 3  | 2  | 3  | 2  | 3  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  |
| 7. Seminar                      | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 3  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  |
| 8. Audio-Visual                 | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 3  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  |
| 9. Video (films etc)            | 2  | 2  | 2  | 2  | 3  | 2  | 3  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  |
| 10. Workshops/Practicals        | 2  | 2  | 2  | 2  | 2  | 2  | 3  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  |
| 11. Demonstrations              | 2  | 2  | 2  | 2  | 3  | 2  | 3  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  |
| 12. Visits/Field Trips          | 2  | 2  | 2  | 2  | 3  | 2  | 3  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  |
| 13. Self-Study*                 | 1  | 3  | 2  | 2  | 2  | 1  | 2  | 1  | 2  | 1  | 2  | 1  | 2  | 1  | 2  | 1  | 2  | 1  | 2  | 1  | 2  | 1  | 2  | 1  |
| 14. Case Study                  | 2  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  |
| 15. Simulation                  | 2  | 2  | 2  | 2  | 3  | 2  | 9  | 2  | 3  | 2  | 9  | 9  | 3  | 2  | 2  | 3  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  |
| 16. Group Activities*           | 2  | 1  | 1  | 2  | 1  | 2  | 1  | 2  | 1  | 2  | 1  | 2  | 1  | 2  | 1  | 2  | 1  | 2  | 1  | 2  | 1  | 2  | 2  | 2  |

Note: *Self-study was interpreted by students as learning by oneself outside lectures not IL
*Group activities usually done on an informal basis.
(A SPECIMEN OF GROUP INTERACTION TASK HANDOUT TRANSLATED FROM THE MALAYSIAN LANGUAGE)

Individualised learning and group interaction task (ILGIT 2/1)

(Criterion referenced and norm-referenced; summative and formative assessment)

A. GROUP: Phase GA (2 persons)

Discuss the task with one other person (2 persons in one group)

(5 minutes)

Task Define at least 6 functions of assessment and measurement.

B. GROUP: Phase GB (3 persons)

Every person in GA choose 2 other persons (3 persons in a group) and do the following task:

(13 minutes)

Task Discuss these four types of assessment (the definition and the functions):

- Norm-referenced
- Criterion-referenced
- Summative
- Formative

C. GROUP: Phase GC (5 persons at the most in a group)

Every group in GB form into groups of 5 persons and discuss the following task:

(13 minutes)

Task What type of assessment is appropriate (norm-referenced, criterion-referenced or both) for the following aims:

(a) For selecting pupils who can qualify for the Koran reading competition.
(b) For testing the ability of every pupil at long jump
(c) For identifying the weak students so that they can be given remedial help.
(d) For assessing the extent to which the teacher's objectives have been achieved.
D. REVIEW: One person from every group—

Task A representative from each group will report the gists of the discussion to the class and the group members will defend their arguments in an intergroup discussion, if necessary.

(20 minutes)

NOTE:

1. There should be no more than 5 persons in group at phase GC. However, it there are less than 5 persons in a group it is alright.

2. I shall collect from you on 30.6.81 the following:

(a) Module D1 and D2 for checking
(b) All answers to GIT 2.

CLASS MONITOR PLEASE ENSURE OBSERVATION OF THE TIME LIMIT IN THE GROUP ACTIVITIES

RZ
20.6.81
# An Individualized Learning and Group Interaction Questionnaire

**A.** Read each of the statements carefully and show the degree of your agreement/disagreement by circling (O) the most relevant number in the appropriate column.

<table>
<thead>
<tr>
<th>Group interaction tasks:</th>
<th>Completely Agree</th>
<th>Somewhat Agree</th>
<th>Neither nor disagree</th>
<th>Somewhat disagree</th>
<th>Completely disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. stimulate me to think more than I usually do</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. make me bored</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. help me to understand the subject matter better</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. are not useful to me because I prefer to work alone</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. stimulate my interest in reading the modules</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. are not interesting to me because I cannot work with the people in the group</td>
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<td>2</td>
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<td>5</td>
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<tr>
<td>7. give me a lot of enjoyment</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. are a waste of time</td>
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<td>2</td>
<td>3</td>
<td>4</td>
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</tr>
<tr>
<td>9. give me a chance to express my views even when my views are not correct</td>
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<td>2</td>
<td>3</td>
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<td>5</td>
</tr>
<tr>
<td>10. In group discussion some people tend to dominate because we do not read the modules properly</td>
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<tr>
<td>11. I find it easier to discuss among friends rather than learn by myself</td>
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</tbody>
</table>
Group interaction tasks:

<table>
<thead>
<tr>
<th></th>
<th>Completely agree</th>
<th>Somewhat agree</th>
<th>Neither agree nor disagree</th>
<th>Somewhat disagree</th>
<th>Completely disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>12. I depend less on my lecturer</td>
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<td>5</td>
</tr>
<tr>
<td>13. I am encouraged to speak up more</td>
<td>1</td>
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<tr>
<td>14. I get easily distracted and strayed from the discussion</td>
<td>1</td>
<td>2</td>
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</tbody>
</table>

B.

15. Please rate your participation (your taking part) in the small group interaction tasks.

I did not take part in the discussion 1
I took a little part 2
I took part a lot 3

16. Please rate your understanding as a result of the group interaction tasks.

My understanding got worse 1
My understanding remained the same 2
My understanding increased a lot 3

17. Please rate your satisfaction with the group interaction.

Group learning gives me no satisfaction 1
Group learning gives me little satisfaction 2
Group learning gives me a lot of satisfaction 3
Q3. ILGIT/3

C. To what extent did the individualised learning materials (modules) prepare you for the group interaction tasks related to the modules? Read each of the statements carefully and show the degree of your agreement/disagreement by circling (0) the most relevant number in the appropriate column.

<table>
<thead>
<tr>
<th>Group interaction tasks:</th>
<th>Completely agree</th>
<th>Somewhat agree</th>
<th>Neither agree nor disagree</th>
<th>Somewhat disagree</th>
<th>Completely disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>18. are not useful as follow up to individualised learning</td>
<td>1</td>
<td>2</td>
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<td>5</td>
</tr>
<tr>
<td>19. Group discussion is only useful for topics which are relevant e.g. constructing objective test questions</td>
<td>1</td>
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</tr>
<tr>
<td>20. clear misunderstandings I have when reading through the individualised learning modules</td>
<td>1</td>
<td>2</td>
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<tr>
<td>21. help me to apply the knowledge I gain from the modules</td>
<td>1</td>
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</tr>
<tr>
<td>22. do not reinforce what I have learned through the modules</td>
<td>1</td>
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</tr>
<tr>
<td>23. help me to recall what I have learned from the modules</td>
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<tr>
<td>24. do not make me think and concentrate</td>
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<tr>
<td>25. The IL materials were not helpful to prepare me for the discussion</td>
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<td>26. Statements I made in group interaction were not based on what I had learned through the modules</td>
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<tr>
<td>27. I read the modules because I do not want to appear silent in the discussion</td>
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</tr>
<tr>
<td>Group interaction tasks:</td>
<td>Completely agree</td>
<td>Somewhat agree</td>
<td>Neither nor disagree</td>
<td>Somewhat disagree</td>
<td>Completely disagree</td>
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<tr>
<td>28. I was able to participate in the group interaction tasks because of what I have read from the modules.</td>
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<td>29. The group interaction tasks do not encourage me to read through the modules.</td>
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<tr>
<td>30. A leader is important in a group activity to ensure that students prepare their work.</td>
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<tr>
<td>31. The presence of the lecturer at the discussion hindered my participation.</td>
<td>1</td>
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<tr>
<td>32. When I discuss the modules with someone of my own level I am more free to open up.</td>
<td>1</td>
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</tbody>
</table>
33. (a) Please specify what teaching method or combination of teaching methods below you would wish by ticking the box/boxes provided.

a. Lectures

b. Individualised Learning on its own

c. Individualised Learning and Tutorial (individual)

d. Individualised Learning and group interaction tasks

OR e. A combination of two or more of the above.

(b) If you specify 'e' please write the letters a, b, c, and d (indicating methods of teaching) in the boxes provided.

34. If you wish to make additional comments please use the space below.

THANK YOU FOR YOUR KIND COOPERATION.
**APPENDIX F3**

Table 9.1(a): Students' (Group 05, N = 25 cases) Perceptions To ILGHT

Responses correspond: 1 = Completely agree 2 = Somewhat agree 3 = Neither agree nor disagree 4 = Somewhat disagree 5 = Completely disagree  
NR = No response

<table>
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<tr>
<th>Group Interaction Tasks</th>
<th>S1</th>
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Table 9.1(a) cont'd

| Group Interaction Tasks                                                                 | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | S11 | S12 | S13 | S14 | S15 | S16 | S17 | S18 | S19 | S20 | S21 | S22 | S23 | S24 | S25 |
|----------------------------------------------------------------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 10. In group discussion some people tend to dominate because we do not read the modules properly | 1  | 2  | 2  | 2  | 3  | 2  | 2  | 2  | 4  | 2  | 1  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 4  | 1  | 2  | 3  | 2  | 2  | 2  |
| 11. I find it easier to discuss among friends rather than learn by myself               | 1  | 2  | 2  | 1  | 2  | 2  | 2  | 1  | 2  | 2  | 1  | 2  | 1  | 2  | 3  | 3  | 3  | 2  | 2  | 2  | 3  | 2  |
| 12. I depend less on my lecturer                                                         | 2  | 3  | 4  | 2  | 2  | 4  | 3  | 2  | 2  | 4  | 4  | 2  | 2  | 4  | 2  | 2  | 4  | 3  | 4  | 2  | 4  | 3  | 2  | 2  | 2  |
| 13. I am encouraged to speak up more                                                     | 1  | 2  | 1  | 3  | 2  | 2  | 1  | 1  | 2  | 5  | 2  | 3  | 2  | 1  | 2  | 1  | 2  | 2  | 1  | 3  | 2  | 2  | 2  | 2  | 1  |
| 14. I get easily distracted & strayed from discussion                                    | 5  | 2  | 5  | 4  | 4  | 5  | 3  | 4  | 4  | 4  | 5  | 5  | 3  | 4  | 4  | 4  | 4  | 5  | 4  | 3  | 4  | 4  | 4  | 5  | 4  |
| 18. Are not useful as follow up to IL                                                   | 5  | 5  | 4  | 1  | 4  | 4  | 4  | 2  | 5  | 4  | 5  | 4  | 5  | 5  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 5  |
| 19. Group discussion is only useful for topics which are relevant eg constructing objective test questions | 5  | 4  | 4  | 3  | 2  | 4  | 3  | 2  | 5  | 3  | 2  | 4  | 4  | 5  | 2  | 4  | 4  | 4  | 3  | 2  | 2  | 4  | 4  | 5  | 2  |
| 20. I have clear misunderstandings when reading through the individual learning module  | 2  | 3  | 2  | 2  | 3  | 2  | 2  | 2  | 1  | 2  | 2  | 1  | 1  | 1  | 1  | 2  | 4  | 2  | 2  | 2  | 2  | 1  | 2  | 1  |
| 21. Help me to apply the knowledge I gain from the modules                               | 1  | 1  | 3  | 2  | 3  | 1  | 1  | 2  | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 2  | 1  | 1  | 3  | 2  | 2  | 1  | 2  | 1  |

cont'd
| Group Interaction Tasks                                      | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | S11 | S12 | S13 | S14 | S15 | S16 | S17 | S18 | S19 | S20 | S21 | S22 | S23 | S24 | S25 |
|-------------------------------------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 22. Do not reinforce what I have learned through the modules | 5  | 5  | 4  | 5  | 4  | 4  | 5  | 4  | 5  | 5  | 4  | 5  | 4  | 5  | 5  | 5  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  |
| 23. Help me to recall what I have learned from the modules  | 1  | 1  | 2  | 2  | 2  | 1  | 2  | 1  | 1  | 1  | 2  | 1  | 1  | 2  | 1  | 1  | 2  | 1  | 1  | 2  | 1  | 2  |    |
| 24. Do not make me think & concentrate                       | 5  | 5  | 5  | 4  | 4  | 4  | 5  | 5  | 5  | 5  | 5  | 3  | 5  | 4  | 4  | 4  | 4  | 4  | 5  | 4  | 4  | 5  | 5  | 5  |
| 25. The IL materials were not helpful to prepare me for the discussion | 5  | 4  | 5  | 2  | 4  | 4  | 4  | 4  | 4  | 5  | 5  | 4  | 5  | 5  | 5  | 5  | 5  | 4  | 4  | 4  | 4  | 4  | 4  | 5  |
| 26. Statements I made in group interaction were not based on what I had learned through the modules | 5  | 3  | 4  | 4  | 4  | 2  | 4  | 4  | 5  | 4  | 5  | 4  | 5  | 4  | 5  | 5  | 3  | 5  | 3  | 4  | 4  | 5  | 4  | 4  |
| 27. I read through the modules because I do not want to appear silent in the discussion | 2  | 3  | 2  | 1  | 3  | 5  | 1  | 1  | 3  | 1  | 4  | 2  | 4  | 1  | 2  | 1  | 2  | 2  | 2  | 3  | 3  | 2  | 5  | 5  |
| 28. I was able to participate                                | 2  | 4  | 2  | 2  | 2  | 2  | 1  | 2  | 2  | 1  | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 2  | 1  | 2  | 2  | 2  | 1  |
| 29. Did not encourage                                        | 5  | 4  | 5  | 3  | 5  | 5  | 5  | 5  | 5  | 4  | 5  | 5  | 5  | 5  | 5  | 5  | 4  | 5  | 3  | 5  | 4  | 4  | 4  | 4  |
| 30. A leader                                                 | 2  | 1  | 4  | 1  | 2  | 1  | 2  | 1  | 4  | 5  | 3  | 1  | 2  | 1  | 2  | 1  | 1  | 1  | 1  | 3  | 2  | 2  | 3  | 4  |
| 31. The presence of a text                                   | 2  | 4  | 4  | 3  | 3  | 5  | 4  | 1  | 4  | 2  | 3  | 2  | 2  | 1  | 2  | 3  | 5  | 3  | 2  | 2  | 3  | 3  | 2  | 2  |
| 32. When I discuss the modules                              | 1  | 1  | 1  | 2  | 2  | 2  | 1  | 2  | 1  | 2  | 2  | 2  | 5  | 1  | 2  | 1  | 1  | 1  | 2  |
**Table 9.1(b) Students' (Group 05, N = 25) Participation And Satisfaction From ILGIT**

Responses correspond: 1 = Completely agree    2 = Somewhat agree    3 = Neither agree nor disagree
4 = Somewhat disagree    5 = Completely disagree    NR = No response

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Table 9.1(c)  Students' (Group 05, N = 25) Choice Of Method

Responses correspond: (a) 1 = lecture; 2 = IL; 3 = IL+tutorial; 4 = IL+ GIT; 5 = Combination
NR = No response
(b) 1 = Lecture
2 = IL+GIT
4 = Le + IL + IT
3 & 5 = Le + IL + GIT
6 = Le + IL + IT + GIT
NR = No response

| Group Interaction Tasks | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | S11 | S12 | S13 | S14 | S15 | S16 | S17 | S18 | S19 | S20 | S21 | S22 | S23 | S24 | S25 |
|-------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 33 (a) Choice of method | 1  | 5  | 5  | 4  | 4  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | NR | 5  | 5  |
| (b) Combination         | NR | 3  | 4  | 4  | 5  | 5  | 5  | 5  | 5  | 4  | 5  | 5  | 5  | 3  | NR | 6  | 3  |
APPENDIX F4 (Overleaf)

1. A sample of the individualised learning materials (Modules F1 and F2)

2. Assignment 4 in MF 2/33 This was the basis of GIT3 which is discussed in section 9.7, p. 9.21 - 9.24 of this thesis.
OBJECTIVES AND ASSESSMENT IN THE CLASSROOM

MODULE F 1

Assessment in the Classroom:

Objective Test Questions

(Multiple-Choice Questions)

Individualised Instructional Units
prepared by
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1981

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University of Malaya
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Inst. for Ed. Technology
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MODULE F: OBJECTIVE TEST QUESTIONS

F0  OVERVIEW
F1  MULTIPLE CHOICE QUESTIONS
F2  MATCHING AND TRUE-FALSE ITEMS

ASSIGNMENT
FEEDBACK SHEET

NOTE: THERE ARE TWO UNITS IN THIS MODULE
OVERVIEW

(i) OBJECTIVE TESTS may be defined as testing in which the marking of the test questions can be done objectively by anyone.

(ii) There are 3 common types of objective tests which are used in school namely,

   a) multiple-choice questions

   b) matching items

   c) true-false items

This module will discuss each of these types of test questions.

NOTE: There are other types of objective tests which we are not considering in this module. You are advised to refer to Hudson's book on 'Assessment Techniques, An Introduction Chapter 5 for a discussion of the multiple/or multiple selection items, proper sequence items and assertion/reason items.
UNIT F 1 = MULTIPLE-CHOICE QUESTIONS

OBJECTIVES

At the end of this unit you should be able to

(i) describe the components of a multiple-choice question (MCQ)

(ii) know the principles in constructing MCQ

(iii) apply the principles by identifying the technical flaws in given MCQ's

(iv) construct MCQ questions
F1.1 INTRODUCTION

After we have determined our course content and objectives related to the content and prepared our Table of Specifications, the next step is to decide the types of test which we are going to use. In classroom testing, the two types which are commonly used are the essay type and the objective type of tests. Let us be clear as to what we mean by the term 'objective' in the context of 'objective testing'. The term 'objective' in objective testing should be taken as indicating complete objectivity only in the marking or scoring of the test. The questions can be marked objectively by anyone even if that person has had no training or competence in the discipline which is being tested. They can be marked by either clerical staff or by computers.

The term ITEM rather than question is normally used, although some items may indeed be questions. This would soon be clear to you as you read through the unit.
However, for our purpose, we shall use the two concepts interchangably.

F1.2 MULTIPLE CHOICE QUESTIONS

Multiple-choice test is one of the most versatile and useful assessment tools which you can use in the classroom. It can measure not only factual knowledge, names and symbols, but also higher level abilities of understanding, application and analysis. They are difficult to construct but are very easy to mark and the scores are quite reliable. For easy reference, we can use the short term MCQ for multiple-choice questions.

F1.3 THE STANDARD FORM OF MULTIPLE-CHOICE QUESTIONS

The standard written form of the multiple-choice question is as illustrated. It is advisable that you familiarise yourself with the different components:

(a) the stem
(b) the alternatives or options
(c) keyed or best correct answer
(d) distractors
(e) question or item
(a) The stem may be written in 2 forms:

(i) It may be written in the form of a question as in the example above.

(ii) It may be written in the form of an incomplete statement as shown below.

e.g. Living organisms need oxygen in order to

* A to purify the blood
B to oxidise waste
C to release energy
D to assimilate food
E to fight infection
(b) Alternatives

In the previous example you have seen that there are 5 alternatives (A – E). In some MCQ’s there are 4 alternatives (A – D).

A good rule-of-thumb to use is for you to be consistent throughout your test whether you want to give your pupils 4 or 5 alternatives. If you decide to use both then pupils must be informed of this in the instruction. The maximum number of alternatives recommended is 5 and the minimum is 4.

(c) Keyed or correct/best answer

MCQ answers can either be the correct answer type or the best answer type.

e.g. (i) Correct answer

The capital of Selangor is

* A Shah Alam
 B Alam Shah
 C Kuala Lumpur
 D Klang

[There can be no other correct answer than the keyed answer]

(ii) Best answer

A question sometimes cannot have a precise 'right' or 'wrong' answer. In most questions which measure higher abilities, the answers to be expected can be of varying degree of acceptability. In such questions, pupils will be asked to select the best answers.
e.g. Which of the following factors contributed most to the selection of Kuala Lumpur as the capital of Malaysia.

* A central location
  B old capital of Selangor
  C most developed town
  D business centre

(d) Distractors

The distractors should be plausible, i.e. make sense to both poor students as well as better students. They should be attractive to elicit responses from the pupils. Bear this in mind, because you will soon see the importance of constructing plausible distractors. Examples of questions with poor distractors can be seen later in this Unit when we will discuss some principles of writing multiple-choice questions.
MCQ TESTS CAN MEASURE DIFFERENT ABILITY LEVELS

MCQ tests can measure different ability levels. This is best illustrated by showing you examples.

(i) Knowledge of dates
   e.g. In what year did Sarawak join Malaysia?

   A 1955  
   B 1960  
   *C 1965  
   D 1970

(ii) Knowledge of terminology
   e.g. Which one of the following statements best defines the word 'egress'?

   A An expression of disapproval  
   *B An act of leaving an enclose place  
   C Proceeding to a higher level  
   D Proceeding to a lower level

(iii) Knowledge of specific facts
   e.g. Through which country does the Tropic of Cancer pass?

   A United States  
   B Brazil  
   C Canada  
   *D Mexico  
   E Argentina
(iv) **Knowledge of principles**

e.g. The principle of capillary action helps explain how fluids

A enter solutions of lower concentration

B escape through small openings

C pass through semi-permeable membrane

*D rise in fine tubes

(v) **Ability to explain or illustrate**

e.g. Should merchants and middlemen be classified as producers or non-producers? Why?

A As non-producers, because they make their living off producers and consumers.

B As producers, because they are regulators and determiners of price.

*C As producers, because they aid in the distribution of goods and bring producers and consumers together.

D As producers, because they assist in the circulation of money.

(Source: Ebel, p.194)
(vi) Ability to interpret cause-and-effect relationship

e.g. Bread will not become mouldy as rapidly if placed in a refrigerator because

*A cooling retards the growth of fungi
*B darkness retards the growth of mould
*C cooling prevents the bread from drying out so rapidly
*D mould requires both heat and light for best growth

(Source: Ebel, p.195)

(vii) Ability to justify methods and procedures

e.g. What is the area of a circle with a 12 inch diameter? (To the nearest tenth of a square inch)

A 188
B 377
*C 113.0
D 452.2

F1.5 SUGGESTIONS FOR DEVELOPING MCQ'S

The following are some recommendations that you can follow when constructing MCQ's

(i) The stem should indicate the problem: the stem should include a complete idea and should define what the pupils are supposed to do.

E.g. Poor: Mount Everest

A has snow-capped peaks
B is uninhabited
C is located in India
D is the highest mountain in the world
In this kind of question, we may be attempting to ask pupils to discriminate between the most relevant alternatives. If the main concern of the stem is the height then the stem should call attention to that aspect and all the responses should be on 'height'.

Better: The height of Mount Everest is approximately

A 28,600 feet
B 28,800 feet
C 29,000 feet
*D 29,200 feet

(ii) If the stem is in the form of an incomplete statement, it should be meaningful in itself and imply a direct question

e.g. Poor: The United Nations

A maintains peace among the peoples of the world
B establishes international law
C provides military control
D forms new governments

The task is not specified in the stem. Pupils will have to read the stem and alternatives several times. It is difficult for them to focus on what exactly they have to understand.

Better: The major purpose of the United Nations is to

A maintain peace among the peoples of the world
B etc

(Source: Gronlund, p.205)
(iii) In general the stem should include any words that must otherwise be repeated in each response

e.g. Poor: Test reliability

* A may be improved by increasing the length of the test

B may be improved by including a larger number of items which are difficult

C may be improved by shortening the test

D may be improved by changing the test to one of absolute standard of performance

Better: The reliability of a test may be improved by

A increasing the length of the test etc

(Source: Mehrens, p.282)

(iv) Avoid using negative stem unless you can make the negative explicit

e.g. Poor: Which one of the following is not safe driving practice on slippery roads?

A Accelerating slowly

* B Jamming on the breaks

C Holding the wheel firmly

D Slowing down gradually

Better: All the following are safe driving practices on slippery roads EXCEPT

A Accelerating slowly etc.

(Source: Gronlund, p.200)
(v) All alternatives should be plausible and homogeneous

Example: Poor: Which of the following men invented the telephone?

* A Bell
B Salk
C Morse
D Pasteur
E Marconi

Better: Which of the following men invented the telephone?

* A Bell
B Morse
C Marconi
D Edison

(Source: Mehrens, p. 284)

(vi) Avoid giving clues to the correct answer

Example: Poor: Which of the following diseases is caused by a virus?

A Scarlet Fever
B Typhus Fever
C Typhoid
* D Viral pneumonia

NOTE: The term Viral is a clue for virus. (Source: Mehrens, p. 285)
(vii) **Do not use definitions as stems**

e.g. Poor: A marriage in which one woman marries one man is called

A unicameral
B dualism
C monotheism
D monogamy

This limits the scope and achievements to be measured.

Better: What is monogamy

A refusal to marry
B marriage of one woman to more than one man
C marriage of one man to more than one wife
* D marriage of one man to only one wife

(Source: Ebel, p. 213)

(viii) **Alternatives within item should be arranged in natural sequence (chronologically, alphabetically, etc) and one below the other**

e.g. Poor: The present population of Kuala Lumpur is

A 790,000
B 760,000
C 780,000
* D 770,000

Better: The present population of Kuala Lumpur is

A 760,000
* B 770,000
C 780,000
D 790,000
VARIATIONS OF MULTIPLE-CHOICE TESTS

Very early in our discussion on MCQ tests, it has been said that the MCQ is one of the most versatile tools in assessment. Most teachers have used MCQ's to assess basic content, but a sampling of classroom tests show very little application to levels of the taxonomy of educational objectives beyond the 'knowledge' level. A useful variation of the MCQ format can help us to get at the higher levels. Scannel describes the variations as 'key list items' and 'interpretive exercises'.

a) **Key list items**

In this format, the options can be listed at the top of the page, the items then become a series of statements each of which fits one of the listed options best.

*e.g.*

A mean
B median
C mode

1 always divides the distribution into .5 above and .5 below it.

2 is most influenced by a few widely deviating scores on one end of the distribution.

3 is the arithmetic average.

4 is the most frequently occurring score.

(Source: Chase p. 127)
b) **Interpretive exercises**

In these form of exercises, the examinees are tested on their ability to evaluate or interpret material such as a passage, diagram, or map. This approach has been commended for its several advantages. First, the presentation of the material about which questions are to be asked guarantees that all examinees have the same information on which to base their analyses. Second, the item is well suited to measuring higher level achievements such as interpreting and drawing conclusions.

Two examples of interpretive exercises are presented, the first of which consists of written material.

**Example 1**

Items 1 - 3 are based on the following selection:

Spores serve the same propagative and reproductive function as the seeds of higher plants, but spores are much smaller and simpler in structure than seeds are. Usually spores have one or at most a few cells and do not contain an embryo as do seeds. Nevertheless they germinate and produce new fungus plants with parental characteristics. The conditions required for germination are similar to those for seeds, moisture and appropriate temperature being the most important. Time for germination varies with the kind of spore and the temperature, ranging from an hour to several days.

1. To what does the word 'higher' refer as used in the first sentence?
   - A size
   - B complexity
   - C cost
   - D location
   - E none of the above
2 In what way are spores most different from seeds?

* A structure
B number of varieties
C their inability to produce plants
D the conditions needed for germination
E length of germination time

(Source: Scannel p.139)

3 What does a seed contain that a spore does not?

A cell walls
B parental characteristics
* C embryo
D stamen and pistil
E stem

Example 2
The second example of this format is based on a fictitious map.

KEY: ▲▲▲ mountain range
-------- railroad
~ ~ ~ river
1. If the prevailing weather in this region comes from the southwest, which quadrant would receive the greatest rainfall?

A  I  
B  II  
*C  III 
D  IV 

2. In which quadrant would industrial activity probably be the greatest?

A  I  
*B  II 
C  III  
D  IV  

(Source: Scannel p.140)

Interpretive exercises can be valuable measurement tools if the selections relate to instructional goals and the items require examinees to draw on previous knowledge. To make efficient use of testing time, the number of items should be related to the amount of time required by examinees to read and study the material about which the items are written. Careful editing and ingenuity in item development are required to produce good, efficient exercises. The suggestions given earlier for constructing multiple-choice items apply also to the items used in interpretive exercises.
ACTIVITY 1

Rewrite the following items correcting the technical flaws:

(i) How many glasses of milk should a ten year old child have a day?

A  1 - 2 glasses
B  2 - 3 glasses
*C  3 or more glasses
D  4 or more glasses

(Source: Scannel p.145)

(ii) What does the term 'growth' mean?

*A maturation
B learning
C development
D all of these
E none of these

(Source: Ebel, p.219)
(iii) The second principle of education is that the individual:

A. gathers knowledge
B. makes mistakes
C. responds to situations
D. resents domination

(Source: Ebel, p.213)

(iv) Which is the best definition for a vein?

A. a blood vessel carrying blood going to the heart
B. a blood vessel carrying blue blood
C. a blood vessel carrying impure blood
D. a blood vessel carrying blood away from the heart

(Source: Ebel, p.221)

NOTE: Discuss your answers with your partner.
(v) The validity of an examination will be lowered by:

A awarding marks for answers which, though irrelevant to the questions, do indicate that the candidate knows something about the topic.

*B adhering strictly to a prepared marking scheme.

C adapting the leniency of the marking to the ability of the candidate.

D setting questions irrelevant to the examinations purpose.

Which of the above statements is not true.

(Source: Thyne p.188)

(vi) Which of the following has helped most to increase the average length of human life?

A fast driving
B avoidance of overeating
C wider use of vitamins
*D wider use of innoculations.

(Source: Ebel, p.220)
(vii) What is the term for birds 'moving' from one region to another?

A immigration  
B nesting  
*C migration  
D escalation

(Source: Scannel, p.128)

(viii) In which of the following ways would a caricature most likely be used?

A to illustrate a high school biology book  
*B to accompany a political article in a newspaper  
C to show an example of a great work of art  
D to portray a famous historical event that was not photographed

(Source: Scannel, p.123)

(ix) The validity of an examination is

A lowered by inconsistent marking  
B dependent upon...etc.  
C likely to be raised if..etc.  
D etc.

(Source: Thyne, p.187)
(x) The meaning of 'interdependent world' is

A most countries are self-governed
B most countries belong to an international organisation
C rights and freedoms are the same
*D other countries are affected by events within one country

(Source: Adapted from Scannel, p.124)

(xi) An embargo is

*A a law or regulation
B a kind of boat
C an embankment
D a foolish adventure

(Source: Ebel, p.223)
(xii) How did styles in women's clothing in 1950 differ most from those in 1900?

A they showed more beauty
B they showed more variety
C they were easier to clean
D they were easier to live in, to work in, to move in, and were generally less restrictive

(Source: Ebel, p.202)

(xiii) What do you consider the most important objective of the staff meetings?

A to establish good working relations with your staff
B to handle routine matters
C to help teachers improve instruction
D to practice and exemplify democracy in administration

(Source: Ebel, p.214)
ANSWER KEY: ACTIVITY 1

(i) The responses overlap. They should be rewritten such as:

A 1 - 2
*B 3 - 4
C at least 4
D at least 5

(ii) No word means exactly the same as 'growth'. This item appears more suited to best-answer than correct answer form. 'All of these' or 'none of these' are usually considered inappropriate responses to best-answer items. The stem can be reworded such:

Which of the terms is the best meaning for growth?

*A maturation
B learning
C development
D widsom
(iii) The stem seems to suggest that the subject is closely tied up with a particular subject by a particular person. Only the person who had studied a particular book or article which emphasised on the second principle of education would be able to answer this question. Perhaps a new stem which is more acceptable can be written such as:

One of the most important principles of education is that the individual

A gathers knowledge etc.

(iv) Repetition of words in all the responses. The stem can be rewritten as an incomplete statement.

A vein is a blood vessel carrying

*A blood going to the heart
B blue blood
C impure blood
D blood away from the heart

(v) The question may be misleading. Examinees may be accustomed to making correct responses. In this question, they do not know that they have to select a false response until they have read the whole question. If examinees are required to select a false response then this requirement should appear clearly in the stem.
(vi) Option A is an implausible distraction.

Distraction must be sensible as the keyed response. While all the options should be 'plausible' yet the wrong options should be as plausible as the correct option.

(vii) Putting the definition in the stem and giving the terms in the options does not measure useful achievement. It is better to give students the term in the stem.

e.g. What statement describes the process of migration?

A invasion of a bird's territory by another species
B continuation of a species
*C movement from one region to another
D the process of building a nest

(viii) Acceptable

(ix) The stem in this example does not ask for the definition of validity although it seems to suggest that a definition is required. This stem can be misdirective. The options refer to the conditions which govern validity. If the intention were to test the candidates' ability to identify a particular condition of validity, the stem should have made this clear. It might have read,

Which of the following will lower an examination's validity?

A inconsistent marking
B etc
C etc
D etc
(x) The stem does not contain the central issue of the item, although it seems to ask for meaning or definition, the responses point more to full implications of the term 'interdependent world.' Furthermore, the question is more suitable for 'best answer' rather than 'correct answer'.

(xi) Options consist of heterogeneous responses which can make the item easy.

Better: An embargo is

A a tariff
B a customs duty
C the stoppage of goods from entry and departure
D an admission of goods free of duty

(Homogeneous responses will make item more difficult and test higher level knowledge)
(xii) The correct response gives away clues — there is too much detail in stating the correct response.

(xiii) This MCQ asks examinee to express his own opinion. Any of the options would have been a reasonable answer in terms of the examinee's opinion. It is better to modify the stem to ask examinee to directly choose the most important objective of staff meetings.
OBJECTIVES AND ASSESSMENT IN THE CLASSROOM

MODULE F 2

Assessment in the Classroom:

Objective Test Questions

(Matching, True-False Items)

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© Rohana Zubir 1981
UNIT F2: MATCHING AND TRUE-FALSE ITEMS

OBJECTIVES:

At the end of this Unit you should be able to:

(i) differentiate between matching items and true-false items

(ii) know the principles in constructing matching items and true-false items

(iii) apply the principles to identify technical flaws in given questions

(iv) construct matching items

(v) construct true-false items
F2.1 INTRODUCTION

Matching items are presented in two columns: one column consists of the items/questions or premises as they are popularly known and the second column, the answers or responses/options.

For each item or premise, the student is expected to select the response that is correctly associated with the item.

e.g. (1) In the space beside each capital city on the left, place the letter of the country to which the city belongs.

<table>
<thead>
<tr>
<th>PREMISES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Bangkok</td>
<td>A Burma</td>
</tr>
<tr>
<td>2 Jakarta</td>
<td>B Indonesia</td>
</tr>
<tr>
<td>3 Kota Kinabalu</td>
<td>C Japan</td>
</tr>
<tr>
<td>4 Kuala Lumpur</td>
<td>D Philippines</td>
</tr>
<tr>
<td>5 Rangoon</td>
<td>E Malaysia</td>
</tr>
<tr>
<td>6 Tokyo</td>
<td>F Sabah</td>
</tr>
<tr>
<td></td>
<td>G Thailand</td>
</tr>
</tbody>
</table>

NOTE: Pupils are asked to select the correct responses in the right column and to place the letters of these right responses in spaces against the corresponding premises. in the left hand column.
F2.2 VARIETY IN APPLICATION OF MATCHING TESTS

(i) Matching items can test simple recall of factual knowledge and definitions. The matching item illustrated above is an example of an item which tests simple recall of factual knowledge by simple association. The following item is another example which tests simple recall.

<table>
<thead>
<tr>
<th>PREMISES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Demonstrated the circulation of blood</td>
<td>A Louis Pasteur</td>
</tr>
<tr>
<td>2 Demonstrated the statistical approach to human heredity</td>
<td>B George Mendel</td>
</tr>
<tr>
<td>3 Conducted crucial experiments on the mechanism of heredity</td>
<td>C Francis Galton</td>
</tr>
<tr>
<td></td>
<td>D Robert Koch</td>
</tr>
<tr>
<td></td>
<td>E William Harvey</td>
</tr>
</tbody>
</table>

(ii) Matching items can test higher level abilities such as understanding, application and criticism which require the students to perform some analysis of a situation to discover the answer. Two examples are illustrated below.

e.g. 3 (a)

Directions: Items 1 - 7 each contain a complete sentence. Determine whether the sentence is simple, compound, complex, or compound-complex. Using the key below, write the letter of the type of sentence it is, on the line to the left of the sentence.

<table>
<thead>
<tr>
<th>PREMISES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 The teacher said that his answer was correct</td>
<td>A Simple sentence</td>
</tr>
<tr>
<td>2 They made him chairman</td>
<td>B Compound sentence</td>
</tr>
<tr>
<td></td>
<td>C Complex sentence</td>
</tr>
<tr>
<td></td>
<td>D Compound-complex sentence</td>
</tr>
</tbody>
</table>
After I had gathered the information, I turned over to him and he started the report.

I warned her, but she was persistent.

(Mehrens, p.260)

NOTE: This item tests the student's ability to classify. The number of premises are 7 in this case and there are only 4 keyed responses. Pupils are asked to classify each premise into any of the 4 classifications in the responses.

e.g. 3 (b)

Match the most likely part with the functional problem.

1. There is a marked loss of power on one cylinder only.  
   - A Battery
   - B Choke
   - C Distributor
   - D Fuel pump

2. Car starts well, but as it warms up runs unevenly and then stops.  
   - A Battery
   - B Choke
   - C Distributor
   - D Fuel pump

3. No electrical power is reaching the spark plugs, but starter cranks.  
   - A Battery
   - B Choke
   - C Distributor
   - D Fuel pump

4. There is gasoline in the tank but little is reaching the carburetor.  
   - A Battery
   - B Choke
   - C Distributor
   - D Fuel pump

5. The starter will not crank the motor.  
   - A Battery
   - B Choke
   - C Distributor
   - D Fuel pump

(Source: Chase p.137)
(iii) The premises may focus on names, terms, phrases, diagrams, pictorial materials, charts and maps. Examples of premises which focus on names, terms, phrases and statements have already been illustrated in the preceding examples. The following is an example which uses a map.

**e.g. 4 Matching items using a map**

<table>
<thead>
<tr>
<th>Column A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responses</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
<tr>
<td>D</td>
</tr>
<tr>
<td>E</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Pupils are asked to identify the countries in the map marked A, B, C, D and E and to match these with the corresponding correct country in the responses by writing A, B, C, D and E in the appropriate spaces.
F2.3 SOME SUGGESTIONS IN CONSTRUCTING MATCHING ITEMS

(i) Select items which are homogeneous, i.e. items which are about the same kind of things. For example, if your items are aiming at testing pupils' knowledge of 'explorers' then all the premises and responses should be related to 'explorers'. In Example 5a below, the items measure knowledge of a variety of information - of rivers, of agricultural produce and of towns.

**e.g. 5 (a)**

**Poor:**

1. The state where the longest river in Malaya is ____________
   - A Perak
   - B Pahang
   - C Johore
   - D Penang
   - E Province Wellesley

2. The state where most pineapples grow ____________
   - A Perak
   - B Pahang
   - C Johore
   - D Penang
   - E Province Wellesley

3. The state where the town called Dinding is ____________
   - A Perak
   - B Pahang
   - C Johore
   - D Penang
   - E Province Wellesley

**Note:** Determine what knowledge you want to test and construct your items so that they are all about the same thing. Furthermore, it is a good practice to label each column as you see in our better example below. This helps both pupils and teachers to focus on items which are homogeneous.

**e.g. 5 (b)**

**Better:**

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D</strong> 1</td>
<td>A Johor</td>
</tr>
<tr>
<td>The state where the town called Dinding is in.</td>
<td>B Kedah</td>
</tr>
<tr>
<td><strong>F</strong> 2</td>
<td>C Kelantan</td>
</tr>
<tr>
<td>The state where the town called Shah Alam is in.</td>
<td>D Perak</td>
</tr>
<tr>
<td><strong>D</strong> 3</td>
<td>E Pahang</td>
</tr>
<tr>
<td>The state where the town called Parit Buntar is in.</td>
<td>F Selangor</td>
</tr>
<tr>
<td><strong>A</strong> 4</td>
<td>G Trengganu</td>
</tr>
<tr>
<td>The state where the town called Mersing is in.</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The items are all focussed on towns in the Malay states.
(ii) Limit the length and number of premises.

Length of each premise - Each premise should not be too long because pupils would find it difficult to focus on the central idea. Pupils have to shuttle back and forth between long items.

Number of premises - Keep the list relatively short. You can use 5 - 12 questions but the ideal number of premises is 5 - 8.

(iii) List more responses than premises unless it is of the classification type in example 3 (a). If you match 5 premises with 5 responses then after selecting 4 answers the student may automatically place the remaining response in the remaining premise slot without actually knowing it is correct. One wants to avoid guesses. Note that in all our examples, except example 3 (a), there are more responses than there are premises.

(iv) Make every response which matches the premises plausible.

(v) Arrange answers in a systematic order either in alphabetical or numerical order. Note in example 5 (b), the states are listed in alphabetical order.

(vi) Give clear directions e.g. we can write a direction for example 5(b) in the following manner.

Directions: In the blank to the left of each town in Column A, write the letter of the state in Column B. You may use a letter in Column B once, more than once, or not at all.

(vii) Insert in your directions the clause 'you may use a letter in Column B once, more than once, or not at all'. The reason for this is to prevent pupils from making guesses. Note that in example 5 (b), premise 1 and 3 each has the same response (D)

(viii) All items and options for a given matching exercise should be on a single page.
ACTIVITY 2

Identify the faults in the following matching items

1 (i) 1 blood
- 2 necessary for the clotting of blood
- 3 plasma
- 4 carries blood from the lungs to the heart
- 5 small intestine

A tissue that carries oxygen to all parts of the body
B Vitamin K
C pulmonary vein
D the liquid part of the blood
E is about 20 feet long

(Scannell, p.118)

(ii) B 1 Battle of Hastings
D 2 Crimean War
C 3 Plains of Abraham
E 4 Saratoga Campaign
A 5 Waterloo

A 1815
B 1066
C 1759
D 1861
E 1777

(Adapted from Mehrens p.263)
2 Choose a topic in your subject area and
   a) write one matching item to test
       simple recall of factual knowledge.

   b) write one matching item to test
       a higher level ability.

Pay attention to the suggestions which have been made
with regard to the construction of matching items.

NOTE: You may wish to
discuss this
activity with your
partner.
ANSWER KEY: ACTIVITY 2

Faults

1(i) (a) There is no label in terms of column and description of the columns.

(b) The items in the columns are heterogeneous. The items are about parts of the body and about vitamins, etc. and within each column part of the body and functions of the parts of the body are mixed.

(c) The responses are equal in number to the premises.

(d) The responses are not arranged in alphabetical order.

The improved version may look something like the following:

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Tissue that carries oxygen to all parts of the body</td>
<td>A artery</td>
</tr>
<tr>
<td>2 Carries blood from the lungs to the heart</td>
<td>B blood</td>
</tr>
<tr>
<td>3 The liquid part of the blood</td>
<td>C plasma</td>
</tr>
<tr>
<td>4 The cells that help blood to clot</td>
<td>D pulmonary vein</td>
</tr>
<tr>
<td></td>
<td>E red corpuscles</td>
</tr>
<tr>
<td></td>
<td>F white corpuscles</td>
</tr>
</tbody>
</table>

NOTE: Although the item has been improved to focus on aspects related to the blood, it is still not possible to label the columns because the premises and responses are still not homogeneous.
(ii) **Faults**  
(a) equal number of premises and responses  
(b) the responses are not arranged in chronological order  
(c) item does not give instruction to student  
(d) the premises and responses are not labelled

---

The improved version may look like this:

**Directions:** Under column A are listed famous wars and battles. Under column B are listed dates of these wars or battles. Place the letter of the appropriate date in the blank to the left of the battle or war.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Battles</strong></td>
<td><strong>Dates</strong></td>
</tr>
<tr>
<td>A 1 Battle of Hastings</td>
<td>A 1066</td>
</tr>
<tr>
<td>F 2 Crimean War</td>
<td>B 1759</td>
</tr>
<tr>
<td>B 3 Plains of Abraham</td>
<td>C 1777</td>
</tr>
<tr>
<td>C 4 Saratoga Campaign</td>
<td>D 1812</td>
</tr>
<tr>
<td>E 5 Waterloo</td>
<td>E 1815</td>
</tr>
<tr>
<td></td>
<td>F 1861</td>
</tr>
<tr>
<td></td>
<td>G 1904</td>
</tr>
<tr>
<td></td>
<td>H 1914</td>
</tr>
</tbody>
</table>
F2.4 INTRODUCTION

There are several types of true-false test formats, which for convenience, have all been categorised under the common heading of 'true-false' tests.

The types of true-false test which we will discuss are the following:

A  (i) true-false
    (ii) yes-no items
    (iii) right-wrong items

Each of these in turn can be presented either as

B  (i) a single item variety
    (ii) a cluster variety
    (iii) a correction variety

The true-false test is essentially a test in which, given a statement/or statements pupils are expected to judge the truth or falsity of that statement or statements. Let us illustrate these types with several examples (overleaf).
F2.5 ILLUSTRATIONS

A As a single item

In this type of item pupils are given a statement to judge the truth or falsity of the statement.

(i) True-False

Example 1:

The capital of Java is Jakarta

(ii) Yes-No

Example 2:

Is a dollar worth more than 100 cents?

(iii) Right-wrong

Example 3:

The following are some English and Malay words. If the two words have the same meaning write 'R' in the blank. If the words have a different meaning write 'W' in the circle.

jungle - hutan R

jungle - butang W
B (i) As a cluster

In this type of an item, the pupils are given an incomplete stem with several related answers. They are to judge the truth or falsity of each of these.

Example 4:

The arithmetic mean is

(a) a measure of central tendency \[ \text{T} \quad \text{F} \]

(b) less affected by extreme scores \[ \text{T} \quad \text{F} \]

(c) used to express the correlation between two variables \[ \text{T} \quad \text{F} \]

(Source: Mehrens, p. 267)

B (ii) Correction variety

In this variety, the pupils are given a statement to judge the truth or falsity of the statement. In addition, they are also asked to cross out the incorrect portion which is underlined and insert the correct response.

Example 5:

The meaning of antonym is

\underline{synonym} \quad \underline{opposite} \quad \text{T} \quad \text{F}

The product of \(9 \times 7 = \frac{63}{x}\) \[ \text{T} \quad \text{F} \]
F2.6 USEFULNESS OF TRUE-FALSE ITEMS

(i) True-false items are suitable to test simple recall of factual knowledge as well as higher level abilities of comprehension and problem-solving provided that they are carefully prepared.

(ii) True-false tests can test a greater number of items which can provide a valid test of achievements.

(iii) True-false items of the cluster type can save space and reading time.

(iv) True-false items are relatively easy to write and can be objectively scored by anyone.

F2.7 SUGGESTIONS FOR CONSTRUCTING TRUE-FALSE ITEMS

True-false items have been severely criticised for at least 3 main reasons:

(I) Triviality: True-false items have been said to test very simple and unimportant facts that the statements have often been made false merely by the insertion of the negative term such as 'not' as illustrated in the example 6.

True-false items tend to become trivial due to the form and not the content of the items. Quite often, statements in true-false items have been made false by the addition of a few words and negative words.
(i) Avoid using negatives, especially double negatives in order to avoid triviality and also confusion to the pupils. Pupils may overlook the negatives.

Example 6:

Poor: Mount Everest is not the highest mountain in the world.

Better: Mount Everest is the highest mountain in the world
(ii) Avoid lifting statements from books and adding or taking away a few words to make them false. Besides making the statements trivial, this practice also encourages memorisation. Use the idea or information from books in a novel situation.

(iii) Write statements which are plausible and which appeal to the commonsense of the intelligent pupils.

(iv) Avoid trivialities by making the task of responding harder. This will increase the discriminating ability of the test items. Consider how you might test student's command of Archimedes' Principle. It should not be done by offering him the usual expression of the principle as a true statement, as has been done in the two following examples.

Examples: 7 & 8

(a) A body immersed in a fluid is buoyed by a force equal to the weight of the fluid displaced.
   
   T  F

(b) A body immersed in a fluid is buoyed by a force equal to half of the weight of the fluid displaced.
   
   T  F
Instead the student might be asked to recognise the principle in some alternative statement of it, as in Examples 9 and 10.

Examples: 9 & 10

(a) If an object having a certain volume is surrounded by liquid or gas, the upward force on it equals the weight of the volume of the liquid or gas.

(b) The upward force on an object surrounded by a liquid or gas is equal to the surface area of the object multiplied by the pressure of the liquid or gas surrounding it.

Examples: 11 & 12

(a) The buoyant force on a one centimeter cube of aluminium is exactly the same as that of a one centimeter cube of iron when both are immersed in water.

(b) If an insoluble object is immersed successfully in several fluids of different density, the buoyant force upon it in each case will vary inversely with the density of the fluids.

(Source: Ebel, p.165)
(II) Ambiguity

For true-false items to be valuable, they must be completely unambiguous. There are several factors which you need to consider when you construct true-false items which are unambiguous.

(i) Use clear, precise language and avoid using words like 'usually', 'some', 'generally', 'should', 'sometimes', 'may', 'few' and other such determinants. 'All' and 'never' indicate that the items are false and 'some' and 'sometimes' indicate that the items are true. Pupils will be quick to pick up such clues.

Avoid writing statements which are open to many interpretations.

Example 13:

Poor: All men are equal T F

Better: The American Declaration of Independence states that all men are created equal. T F

(Source: Mehrens, p. 271)

NOTE: The first statement is very ambiguous and is subject to many interpretations depending on what the philosophy of the individual is.

(ii) Use items which are clearly true or clearly false. Items which are partly true and partly false tend to confuse pupils because they cannot decide which part of the statement to judge true or false.

Example 14:

Poor: Kuala Lumpur is the capital of Selangor and is the capital city of Malaysia T F
Better: Kuala Lumpur is the capital city of Malaysia

\[ \begin{array}{c}
\text{T} \\
\text{F}
\end{array} \]

OR

Kuala Lumpur is the capital of Selangor

\[ \begin{array}{c}
\text{T} \\
\text{F}
\end{array} \]

NOTE: The one ambiguous statement has now become two clear unambiguous statements. Look at suggestion (iii).

(iii) Use only one idea in a single statement unless it is an item which has a subordinate clause as in suggestion (iv). For instance in our example 14, the ambiguous statement has been revised to become 2 separate and clear items.

(iv) In a statement that is written as compound or complex sentence, ensure that the part that is to be judged true or false be underlined.

Example 15:

Cigarette smoking is believed by many scientists to be harmful to human health because of the lead content of cigarette smoke.

\[ \begin{array}{c}
\text{T} \\
\text{F}
\end{array} \]

NOTE: Pupils are asked to judge the truth of falsity of the underlined statement.
(v) Use specific rather than general terms e.g. instead of 'a long test' say 'a 100 item test', instead of 'a test item with moderate difficulty' say 'an item where between 40% to 60% of examinees answer correctly.

Example 16:

Poor: In the year from January 1, 1978, through to December 31, 1979, many people died in road accidents in Kuala Lumpur


The term 'many' is ambiguous. It is better to give a quantitative value to it.

(vi) Write items in pairs, one true and one false as shown in the example.

Example 17:

(a) An eclipse of the moon can only occur when the moon is full.

(b) An eclipse of the moon can only occur when the moon is new.

(Suggestions (v) and (vi) from Ebel, p.160)
(III) Guessing: True-false items are said to be very vulnerable to guessing. The error as a result of guessing in true-false items is one in two which is 50%.

(i) Avoid making true statements consistently longer than false statements.

(ii) Have approximate numbers of true and false statements.

(iii) Have pupils provide correct answer for statements which they see as false as in Example 5 page M2/14.
ACTIVITY 3

Here are a selection of statements of true-false items.

(i) Plants usually require sunlight for proper growth.

T   F

Good/poor statement

Points noted

Improved version
(ii) The historical name of Singapore was Tumasik

Good/poor statement
Points noted

(iii) Toads are reptiles

Good/poor statement
Points noted
(iv) There are five rules to follow in writing true-false items.

<table>
<thead>
<tr>
<th>T</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good/Poor statement</td>
<td></td>
</tr>
<tr>
<td>Points noted</td>
<td></td>
</tr>
</tbody>
</table>

Improved version
(v) Horses are mammals and are the most intelligent animals with the exception of man.

T    F

Good/poor statement
Points noted

Improved version

(vi) Human beings cannot exist without oxygen.

T    F

Good/poor statement
Points noted

Improved version
vii) (a) Tin was discovered by Long Jaafar in Perak.

(b) Tin brought Chinese secret societies into Malaya

(c) Tin is the main export in Malaysian economy

Good/poor statement
Points noted

Improved version
(viii) The arithmetic mean is

(a) a measure of central tendency

(b) less affected by extreme scores than is the median

(c) used to express the correlation between two variables

(Source: Mehrens, p.269)

Good/poor statement

Points noted

Improved version
ANSWER KEY: ACTIVITY 3

(i) The statement is poor because it is made ambiguous by the determinant 'usually'.

Improved version: Plants require sunlight for proper growth.

T F

(ii) The statement is simple and clear, and not too trivial in terms of testing lower secondary school children.

(iii) Same answer as for (ii)

(iv) Poor: Seems like a textbook statement which tests trivial information.

Improved version: "Malaysia celebrates its independence on 31 August"

(a) This statement is plausible T F
(b) This statement is trivial T F
(c) This statement tests simple recall of knowledge T F

NOTE: In the improved version students are asked to apply their knowledge of principles in writing True/false items.
(v) Poor There are two ideas in the single statement in which the first portion is true and the second part is not. Besides the part that students are to judge as true or false has not been underlined.

Improved version:

(a) Horses are mammals
   T   F

(b) Horses are the most intelligent animals
    with the exception of man.
    T   F

(vi) It is a short statement but it contains a negative term which may be misinterpreted. It is better to write 'Human beings need oxygen to exist' (True)

(vii) Good statement

(viii) Good statement testing higher level cognitive skills.
F2.8 POINTS TO BEAR IN MIND AND FOLLOW THROUGH

This module has not looked at other aspects of Objective Testing such as how to administer objective testing, the types of answer sheets that you may use and the appropriate 'directions' that you should use.

For information on these aspects, you may look at Scannel's book pages 142 - 144.

DO NOT FORGET TO DO THE ASSIGNMENT AT THE END OF THIS MODULE
REFERENCES


NOTE: YOUR ASSIGNMENT IS ON THE NEXT PAGE
ASSIGNMENT 4

On the basis of the accompanying extract do the following activities:

(i) Construct 2 multiple-choice questions

(ii) Construct 2 matching items which test a higher level ability

(iii) Construct 2 true-false items which are plausible and not trivial

Note that you will be exchanging assignment papers at tutorial. These assignments will be used as the basis for our small group discussion.
Limestone and Chalk Features

DRAINAGE FEATURES IN A LIMESTONE REGION

The nature of limestone
Limestone consists chiefly of calcium carbonate which is insoluble. The carbon dioxide, which rain water absorbs from the air, turns the insoluble carbonate into soluble bicarbonate. This is the reason why rain water and rivers are able to remove limestone in solution.

\[ \text{CaCO}_3 + \text{CO}_2 + \text{H}_2\text{O} = \text{Ca(HCO}_3\text{)}_2 \]

Limestone is a well-jointed rock and its joints and bedding planes soon become opened up by rain and water, and in time the surface consists of broken and rugged rocks.

Limestone landscape
One of the most noticeable features of a limestone landscape is the almost complete absence of surface drainage. The permeability of limestone permits rain to soak into it very easily. Joints rapidly become excavated and deepened, with the result that the surface becomes criss-crossed with wide irregular gullies, known as grikes. The intervening blocks of limestone surface are called clints.

Rivers rising in a non-limestone region sometimes flow into a limestone region. When this happens the rivers disappear into vertical holes in the surface and continue to flow as underground rivers inside the limestone. The vertical holes, called swallow holes or sink holes, are formed by rivers and they are usually widened vertical joints. Gaping Ghyll in Yorkshire, England, is a particularly good example. Swallow holes may join together to give a very large opening, called a doline. Likewise, dolines may join up to give even larger openings. These are called uvala.

Rivers which flow inside limestone develop underground caves and caverns as they flow along joints and bedding planes. Some caves are of great size, e.g., Carlsbad Cave (New Mexico – U.S.A.) is 1200 metres (3950 feet) long, 183 metres (600 feet) wide and 90 metres (295 feet) high. Batu Caves, near
in small shallow patches which support only a few shrubs, grasses and in some regions sweet-smelling herbs. Larger plants, such as trees, only occur in the bottom of large valleys which have been excavated down to the rocks underlying the limestone. Although the limited plant life in limestone regions varies from region to region, it being dependent upon the nature of the climate, the general appearance of all limestone regions is very much the same. The limestone region around Ipoh, in Perak (Peninsular Malaysia), is well-covered with vegetation because of the fairly deep soils which have formed under humid tropical weathering.

Limestone landscapes are called karst landscapes and good examples occur in north-west Yugoslavia, the Pennines of the U.K., the Yucatan Peninsula of Mexico, the Kentucky region of the U.S.A. and parts of Perak and Perlis in Peninsular Malaysia.

Value of Karst regions to Man

Because of their barren nature karst regions contain few settlements. The dryness of the surface and the limited amounts of poor soils prevent the growth of a continuous plant cover. In some regions there is sufficient grass to support sheep or goats and animal grazing takes place. Occasionally areas of good soils do occur. These are usually confined to basins which have been formed by the collapse of roofs of underground caverns. In Yugoslavia and other parts of the Mediterranean region, these soils are usually red and are called terra rossa. They are valuable for farming.

Limestone is quarried as a building stone and for making cement, and usually there are stone and cement works near to limestone regions, e.g. near to Ipoh in Peninsular Malaysia.

Features of a chalk landscape

Chalk, like limestone, is made of calcium carbonate but it is much softer than limestone. Its surface is not marked by outcrops of hard rock. Instead it is usually gently undulating with rounded hills, called downs in England, and wide open valleys, which are usually without rivers. Chalk is a porous rock and rain falling on its surface rapidly soaks into the ground. There is, therefore, very little surface run-off, that is, there are very few streams. Because the valleys are without streams, they are called dry valleys or coombs.

Good examples of chalk landscapes occur in England in the Chiltern Hills and the Downs, and in these regions dry valleys are very common. These valleys were obviously formed when the water-table was higher than it is at present. Possibly, towards the end of the last glacial period, vast quantities of melt water from the retreating ice sheets were able to flow as rivers across these chalk regions, because the subsoils were frozen, thus presenting an impermeable zone.

Source: R.B. Bunnett, "Physical Geography"
APPENDIX F.5

Table 9.4  Completion Of Modules A - G (Group 05, N = 25 Cases)

1. C  = Completely
2. IP = In part
3. NAA = Not at all
4. NR = No response
5. NS = Non-submission

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